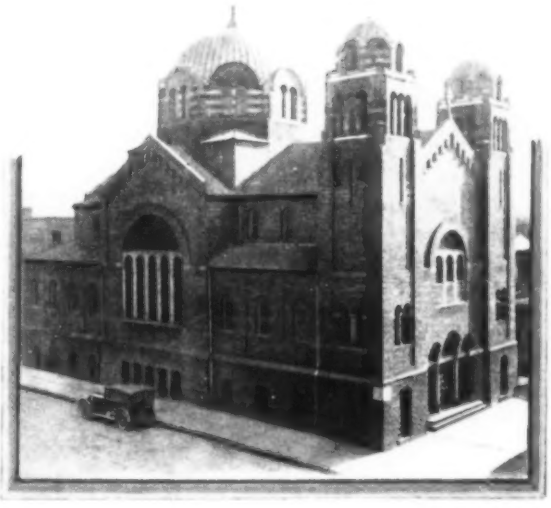
American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 95, No. 22 CHICAGO, JUNE 2, 1928 $2.00 Per Year

Standing Seam Horse Head ZINC Roofing



Church at McKees Rocks, Pa. Horse Head Zinc was chosen for this difficult standing seam job because of its workability and durability.

The Lowest Cost Permanent Metal Roofing

A lifetime of service at the lowest cost per year.....that is the kind of performance you can sell with Standing Seam *Horse Head Zinc* Roofing. And that is the kind of service that will bring increased profits for your business. Many progressive sheet metal contractors have already proved it.

Standing Seam *Horse Head Zinc* Roofing combines all the essential characteristics of an ideal, economical metal roof.....100% rust-resistance which makes it permanent.....a natural silvery gray color of pleasing tone.....moderate cost, lower than that of any other permanent metal roofing.

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SUCCESS HEATER MANUFACTURING COMPANY

MANUFACTURERS OF

WARM AIR HEATING SYSTEMS

DES MOINES, IOWA

January 1, 1928

Miss Etta Cohn,
American Artisan,
Chicago, Illinois.

Dear Miss Cohn:

It is a pleasure to write you regarding our opinion of the American Artisan as an advertising medium for Warm Air Heaters.

The knowledge we obtained from using several different publications has satisfied us that the best results were being obtained from our advertising in the American Artisan and for this reason we are limiting our advertising for 1928 to your magazine.

The results we have obtained is, to say the least, all we expected, and we take pleasure in handing you herewith our order for twelve front covers for the year of 1928.

With best wishes for the success of your publication, and with kindest personal regards, we are

Yours very truly,

SUCCESS HEATER MANUFACTURING COMPANY

W. Gunton

W. Gunton — Manager of Sales.
FB

"Western" BOILER PLATE FURNACES

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3. *The 13-Room, 2-Flat House.*
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A sturdy practical furnace that meets the requirements of the average home in a most satisfactory way. Here are some of the reasons.

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Practical in design, with features which actually add value in service, such as corrugated top to take up expansion and contraction, and heavy double grates which are easily shaken from a standing position.

Time tested in cold northern climates, and absolutely guaranteed.

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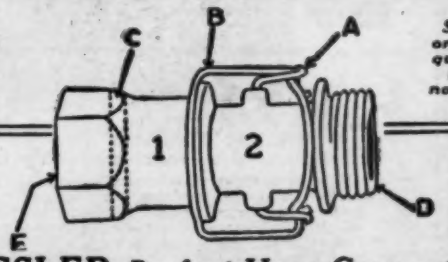
The simplest hose coupling made



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AMERICAN ARTISAN 620 S. Michigan Avenue Chicago, Illinois

January 9, 1928

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Yours truly,
(Signed) Charles D. Eliot,
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The HESS-SNYDER COMPANY
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THE CLEVELAND CASTINGS PATTERN COMPANY
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PATTERNS
FOR STOVES AND HEATERS FIRST-CLASS IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

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STOVE PATTERNS
QUINCY PATTERN COMPANY
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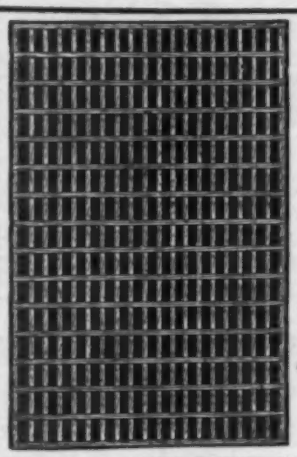

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thoroughly inspected and before leaving the factory must come up to the
AMERICAN STANDARD,
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Roof Cement — Stove Putty
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JAMES L. PERKINS
Western Distributor
140 S. Dearborn St., Chicago, Ill.

Founded 1880

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American Artisan

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THE MOST VALUABLE THING IN THE WORLD

I am the most desirable thing in life. Without me no one can be healthy, happy or useful.

The hidden wealth and vast resources of this earth would have no value without me.

I am the great developer of man. No other agency has called forth so many of his hidden treasures, developed more power of mind and body than I have.

Men and women who try to get along without me are characterless, selfish, undeveloped, useless and unprofitable members of society. I am behind every fortune, every art and science, every achievement, every triumph of man.

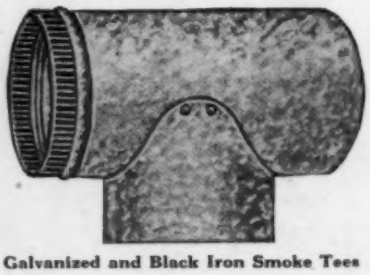
Rich men and poor men alike often try to find substitutes for me, hoping thereby to secure a larger measure of happiness, peace, and satisfaction, but they are always bitterly disappointed. Instead of gain, every substitute for me brings them infinite loss.

As the creator is greater than the creature, so I am greater than wealth, power, fame, learning, or any other acquired possession or quality of man, because I am the source through which he acquired them.

I am—Work.

Galvanized Y

No. 100 Shoe with Adjustable Collar



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Carton of Nested Tin Pipe

4-Piece 90° Adjustable Elbow

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Finest Workmanship

Highest Quality

and—

Service and Prices

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Registers Wood Faces

HANDY PIPE

All Warm Air Heating Supplies

How To Make Some Money!

This tells how to make money

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2nd—Talk to a heating engineer who sells dealers who make money

3rd—Talk to a manufacturer who makes money

4th—Then write us for the name of a travelling heating engineer and a COLONIAL dealer near you, who make money selling furnaces

5th—Then use your own judgment

GREEN FOUNDRY & FURNACE WORKS

Established Since 1869 - - Des Moines, Iowa

Mention AMERICAN ARTISAN in your reply—Thank you!

American Artisan
The Warm Air Heating and Sheet Metal Journal

Vol. 95 CHICAGO, JUNE 2, 1928 No. 22

Delegates to the Convention of the National Association of Sheet Metal Contractors at Banquet in Statler Hotel, Cleveland, Last Week.

Tentative Form of Code of Ethics for Sheet Metal Industry

Presented at Cleveland Convention of National Association of Sheet Metal Contractors, by Harry J. Dettmers, Chicago

MUCH has been said and written regarding codes, their value and non-value. Frequently we hear the statement that a code is developed, goes into the record at a convention such as this, and thereafter is forgotten.

Your committee is not of this opinion, and feels that a code along proper and constructive lines can and should serve as a ladder upon which the moral conscience of members in this industry can daily climb. Doubtless much of the practice that is today labeled as unethical is due not to dishonesty, but to lack of definition and understanding as to what is and what is not ethical.

With these thoughts in mind, your committee submits the following as the brief basis of a Code of Ethics to serve as a guide for the business activities of individuals engaged in this industry. Realizing that the completion of the code in essential respects will entail a number of years work, it is urged that every member of this association make it his duty to carefully study the code, determine what is lacking or needs correction, and write to the Chairman of the Code of Ethics committee, giving his suggestions. By such cooperation the finished code will reflect the national thought and materially assist the Code of Ethics Committee in submitting corrected draft at each annual convention until the work has been completed. Necessarily the code will need additions or corrections even after it is considered complete, for changing business conditions will from time to time bring up new issues that will need interpretation.

A Code of Ethics for Sheet Metal Industry

Submitted by Code of Ethics Committee at the annual convention of the National Association of Sheet Metal Contractors, Cleveland, Ohio, May 22 to 25, 1928. Preamble:

We consider it to be the duty of every individual engaged in the

1. Carefree Chicago Crowd Invades Cleveland Forty Strong. 2. This Well Groomed Sextette Came "Clean" from Pittsburgh. 3. You Tell 'Em Gillespie. You and J. M. Saunders Certainly Know Your Groceries. 4. The Youngest Delegate to the Convention—Miss Otten, Three, of St. Louis. 5. Six Fair Flappers—Two Louisville Belles (Center) and Four of Chicago's Chic Shebas.

sheet metal industry to cooperate with his competitors, employees, trade material interests, trade press, contractors, architects, engineers and the building industry in general in an endeavor to build up and improve the business that affords him a livelihood, to aid constructively in establishing and maintaining proper trade relations and sound competitive conditions, and to refrain from all practices and customs that are obviously injurious to the business as a whole; further to influence and practice the use of recognized proper materials and workmanship for best types of construction.

Section 1

Relations with Competitor

Cordial and friendly relations shall be established and maintained with others in the same line of business. It should be kept in mind that collective effort and cooperation in this industry is most essential for individual success, and further that desirable relations and confidence can only be initiated and maintained by honest and honorable dealings between competitors.

It shall be improper to speak ill of a fellow member. If commendation cannot be conscientiously expressed, be silent. Trade discussions should be constructive and for the good of the industry, not to the discredit.

This Code of Ethics, it should be understood, is presented in tentative form for the consideration of all members of the National Association of Sheet Metal Contractors. It is the beginning of an effort to have the association on record as being in favor of certain practices and frowning upon others within the sheet metal industry.

It is to be hoped that all sheet metal contractors having the interests of the industry at heart will read this code of ethics over carefully, jot down his reaction to it, and should he find any provision therein to which he feels he cannot subscribe, send a complete statement to the National Association of Sheet Metal Contractors' headquarters in Pittsburgh or to the Chairman of the Code of Ethics committee for consideration.

Boost the industry constantly and advocate likewise to competitors.

It shall be considered a duty, insofar as possible, to instruct and enlighten a fellow member where it is evident knowledge is lacking in his business qualifications or undertakings. Many a costly error can be rectified, or wrong procedure corrected, if knowledge is imparted in time. By the interchange of ideas, methods and information, the industry will increase in efficiency for those engaged in it. Knowledge kindly imparted will usually make a business friend.

Frank discussions should be encouraged which tend to bring out conditions in the industry and which provide means to discourage wily and dishonest buyers.

It should be borne in mind that taking the buyer's word as to a competitor's proposition is often dangerous, for the unscrupulous buyer, intentionally or otherwise, usually omits important details or exceptions, which surround the apparent price attractiveness of the proposition being quoted. A buyer whose policy is along these lines usually resorts to the same procedure with

1. Chicago Boys Who Arose Early and Never Weaken. 2. A Few of the Chicago Ladies Starting for the Country Club. 3. The Justly Famous Louisville Auxiliary Delegation, Starring Miss Mary O'Leary, President, Third from Right, and Virginia Hutchison, Secretary, Second from Left, Front. 4. "Colonel" Hutchison and Other Famous "Louisvillains" and St. Louisans. 5. Down Near the Mason-Dixon Line—The Walshes of San Antonio, Mr. and Mrs. Ed. Cuddy, St. Louis; Geo. E. Messmer, St. Louis; Aug. P. Grund, St. Louis; Harry Stanyer, Dallas, and Mr. Hoell, St. Louis. 6. Some of the Cleveland Hosts and Hostesses Who Were Responsible for Everyone's Wonderful Time.

all those soliciting his business, thus "whip-sawing."

Members should, in making estimates, be thorough and positive that no items of material, labor and overhead expense have been overlooked. To this end experienced costs should be kept and estimating and office efficiency maintained. No matter how efficient a shop or erection organization may be, errors in administration end of the business cannot be constantly overcome. A profit in proportion to the character of the undertaking should be added to the cost of materials, labor and overhead expense, and this price adhered to without cutting. It should never be overlooked that a service is being rendered that must bring a profit.

It shall be considered unethical to enter upon work already undertaken by a fellow member without first consulting such member, or endeavor to influence the cancellation of an order already taken.

It shall be a duty to encourage and assist in trade association activities engaged in this industry. If no local association exists, vigorous and continuing efforts shall be exerted to establish one, and when established to affiliate with the state and national associations. If no local association can be established, individuals should affiliate as such, with their state association, and thus make entry into the national body.

Loyalty to these respective groups should be a cardinal principle with all members, keeping in mind that the administration of the local, state and national associations is largely executed by their fellow competitors without monetary return, and that their efforts are in truth a labor of love. The acceptance of office in trade association work in this industry is recognized as being a liability, and of cost to the recipient, as the time that must be devoted to the

work lessens the earning power in the regular channels of livelihood.

Attendance of meetings should be faithful, and prompt meeting of financial obligations should be adhered to. The due or other fees, within reason, that the association finds it necessary to impose upon members should be accepted with good grace and the thought that such funds are for the welfare of all members and the furtherance of constructive work.

It shall be the policy of this association throughout all local and state units making up its membership to do business with one another in all cases where possible.

Section 2

Relation of Employer and Employee

The employer shall consider the necessity of proper apprenticeship training, bearing in mind that the future well-trained mechanics of the industry are drawn from this source, and he shall spare no reasonable effort to assume his share in developing and educating boys to become finished workmen. He shall cooperate in this respect with apprenticeship training and educational program as has been and may be hereafter adopted and recommended by his national association.

He shall, in his general attitude toward all employees, be fair and impartial, express appreciation where it is due, and constructive criticism where the need exists. He shall encourage initiative, offer opportunities for advancement, pay adequate and agreed upon wages for services rendered, provide good working conditions, and insofar as possible provide permanency of occupation.

If agreements are made with labor organizations, they shall be fair and equitable and shall be adhered to as rigidly as any other contract relations, keeping in mind that a like compliance is expected from labor.

Section 3

Relations with Trade Material Interests

The sheet metal contractors shall extend courtesy to material interests with whom they come in contact in their usual requirements, but may decline interview when subjects of no interest to them are presented. No attempt to secure lower prices by misleading statements shall be made, nor attempt to do so by displaying prices of a competitive concern. The terms and conditions agreed upon when making purchases shall be rigidly adhered to, and no deductions or credits shall be taken without the consent of the seller.

To the end that this industry may constantly advance, members are urged to embody in their work only the best of materials, gauges of ample weight for the work in hand, and encourage and patronize material interests, cooperating in such respect.

Support, active insofar as possible, and encouragement shall be given to the national material groups who are furthering the use and quality of products entering into work undertaken by members of this association. It should be constantly kept in mind that the constructive work of these groups is daily adding to the volume of business in this industry.

Recognition and support shall be given to the principal that the practice of selling materials directly to consumers, thereby not permitting a reasonable profit to members in this industry making use of such materials, will ultimately destroy the interests of members in promoting the use of such materials.

Support shall be extended to such material interests who follow the practice of striving to have none other than reputable and responsible contractors handle their commodities, to the end that the finished work will be permanent, and a credit to the industry, and assist in building up the same.

Section 4

Relations with Trade Press

The work of the trade press should be supported and encouraged, keeping in mind that this is the publicity channel of the industry, and the instrument through which the written word is transmitted constantly to all members.

Members should establish a practice of reading trade publications, thus keeping in touch with industry developments, news and progress. No business can prosper if the principal does not keep abreast of the times. The small amount of reading time required is an excellent investment; one idea of value may be worth many times the few hours taken up each month.

Section 5

Relations with Contractors, Architects, Engineers, and the Building Industry in General

Support shall be given by members to various associations in the building industry and allied crafts, where policies of such groups are consistent with policies of this association, to the end that the building industry as a whole may develop constructively and prosper.

Likewise, support should be given to architects, engineers and other professions in furthering our mutual

1. Four Famous Sidewalk Arabs. 2. Mr. Howe. He Was Head Man in the Big Show. 3. Two Charming "Auxiliaries" from Cincinnati and One from Houston, Texas.

interests, and due recognition given to such professions in their relation to the building industry.

The policy of this association in respect to bidding ethics is as follows: This procedure to be considered fair practice in submitting bids:

Proposals should not be invited or accepted from anyone who is in the opinion of buyer unqualified to perform the proposed work or to render the proper service, or to whom, in event that his proposals should be the lowest received, the buyer would be unwilling to award the contract.

In submitting bids contractors shall enclose them in envelopes endorsed in such manner that buyer may know, without opening the same, whom the bids are from, what portion of the work they comprehend, and the particular building to which they apply.

The past practice of soliciting bids from unreliable contractors is condemned, as this practice has been substantially for the sole purpose of prevailing upon reliable contractors to meet the figures of unreliable contractors.

No members will give unit prices where the specification requirement is for the same price for additions or deductions. Changes from the contract drawings which require the installation of work out of sequence with the regular and normal progress of the building shall in view of the increased cost of doing such work be paid for in addition to such unit prices. Contractors should cooperate in advising architects, engineers, and owners with respect to the relative costs of various alternates while plans are being prepared and thus seek to reduce the number of alternates to a minimum.

The figures of one competitor shall not be made known to another before the award of the contract, nor should they be used by the buyer to secure a lower proposal from another bidder.

A contract should preferably be awarded to the lowest invited bidder, but if the award is made to another bidder it should be at the amount of the latter's bid. In no case should the low bidder be led to believe that a lower bid than his has been received.

When buyers have taken, or canvassed bids on work, they shall not again take or canvass bids, but shall award the work to the contractor submitting the lowest bid. A principal contractor, when making up his estimates, is not entitled to receive bids from sub-contractors if he is at the same time making himself their competitor by figuring their portion of the contemplated work. It is legitimate for a principal contractor to figure all portions of work, depending upon no one for what are usually known as sub-estimates, but it is not legitimate for him to receive bids from others for sub-work and then figure those portions in competition with such sub-bidders.

Competitive bids preferably should be submitted only when a definite time and place for the opening of all proposals has been fixed, at which all bidders or their representatives are permitted to be present.

The policy of this association in respect to contract ethics is as follows, this procedure being considered fair practice in contractural relations:

The buyer, after opening the bids, should, for his own protection as well as the protection of the bidders, execute contract with lowest bidder as promptly as practical.

No so-called private or special form of contract shall be used. Documents as prepared by the American Institute of Architects shall only be used, and contract provisions as outlined below shall be used as a rider on all such contracts, and this rider must be signed in same manner as contract.

Rider

Contract Provisions

Adopted as a recommendation by Illinois Sheet Metal Contractors' Association at state convention, April 12, 1928, Rock Island, Illinois, to National Association of Sheet Metal Contractors for adoption as the national policy at national convention to be held in Cleveland, Ohio, May 21 to 25, 1928.

For the purpose of eliminating unfair practices in relations between general contractors and sheet metal contractors, and between owners and sheet metal contractors, the following c o n t r a c t provisions are adopted and recommended for use as a rider in all contracts undertaken by members of this association, and this rider must be signed in same manner as contract.

1. Loss of time due to strikes, lockouts, or any cause beyond control of the sheet metal contractor shall be added to the time of completion of the work covered by his contract.

2. The money consideration named in the contract for the performance of the sheet metal work shall not be subject to any allowance or deduction for specific or prorated charges on account of general cleaning, plaster patching, office or telephone service, light, heat, water, insurance on materials in or at the building (whether set in place or not), use of general gangways and hoisting facilities, nor for materials, power and workmen required for operation and maintenance of the general gangways and hoisting facilities, nor for watchman services or the erection of temporary structures.

3. The sheet metal contractor is not responsible for any glass broken after it is once set in place, and any replacements are to be paid for as an extra; nor does he assume the responsibility for any abuse to his work and any repairs necessary on account of such abuse are to be paid for. Any finish hardware for metal doors or windows which is stolen during the construction of the building is to be replaced and charged for as an extra. If patented weatherstrips are installed on the metal windows and doors, responsibility and guarantee of the sheet metal contractor for the proper operation of either ceases, unless such weatherstrips are detailed and installed to window or door manufacturer's approval.

4. Any differences arising between the parties to the contract are subject to arbitration as provided for in the Standard Documents of

Lansing, Michigan, Warm Air Heating Conference Well Attended

To Work Out a Plan for the State-Wide Adoption of the Standard Code

THE FIRST state conference of warm air heating contractors ever held by the Michigan Sheet Metal and Roofing Contractors' Association, held May 17, was well attended, sixty-five men being present.

State Secretary Frank Ederle called the meeting to order at 10:00 a. m. and outlined the purpose of the meeting, which was to attempt to arrive at a state-wide program for the adoption of the Standard Code of warm air heating. A great difference of opinion as to the proper means of effecting this has developed. Some think that legislation is imperative while others are directly opposed to this and come forth with a substitute in the form of "Certified-Heat" with association inspection. This latter plan, it is obvious, would confine the use of "Certified-Heat" to members of the association.

A. P. Lamneck of the W. E. Lamneck Company, Columbus, Ohio, was first called upon to give his most honest opinion of the question. Mr. Lamneck has had much experience in the matter of legislation, having been influential in having ordinances passed in several cities. He, of course, is in favor of legislation, preferably state legislation. He stated three requirements which he thought should be included in the law: first, proper capacity of the furnace itself; second, sufficient cold air supply from the proper sources, and third, proper warm air pipe sizes. Because of the difference in human nature it is his thought that if the Standard Code or any other code is to be universally adopted that the only way to make some of the parasites in our industry comply to the accepted standard of heating is the threat of fine or imprisonment for violation of said standard.

J. L. Fuller, president of the Detroit Warm Air Heating Contractors' Association, was next called on to express his views. While Mr. Fuller agrees that state legislation should be the ultimate goal, he is opposed to local ordinances and strongly for the "Certified-Heat" plan. With the support of the majority of dealers in every locality, coupled with a little newspaper advertising and publicity, he is of the opinion that it would be only a matter of time before the buying public would demand "Certified - Heat" when buying a home and would force the cheap house builder to patronize firms willing to do good furnace work. Following the accomplishment of this, it would be a much easier matter to have a heating code passed by the state legislature.

The Standard Code has been adopted by the city of Royal Oak, Michigan. F. R. Beaubien, Peninsular Stove Company, and Mr. Lofft, Ideal Furnace Company, both of Detroit, have had experience with this ordinance and were called upon to tell of their experience with it. Both were quite dissatisfied with the way it is working out in Royal Oak. Considerable red-tape and partiality of the furnace inspector being the chief objection. Two more votes for "Certified-Heat."

Ed Karrer, of Flint, has been very active in an effort to have the Standard Code adopted in his city but has not as yet been successful. Ed took a stand for legislation.

The afternoon session was called to order promptly at 1:30 and "Buck" Taylor, Premier Warm Air Heater Company, Dowagiac, was

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the American Institute of Architects.

5. Sheet metal practice as recommended in the National Association of Sheet Metal Contractors' Trade Development Book will govern all work of sheet metal contractor.

6. If a surety bond is required in connection with the sheet metal work, the amount of the premium shall be paid in addition to the amount named in contract for the sheet metal work.

7. The making of current partial payments promptly when due is the essence of the contract and shall be a condition precedent to the undertakings of the sheet metal contractor. The monthly payments on contracts and extras in course of execution shall be made within fifteen (15) days after the submission of estimates for payment, and shall be based on 85 per cent of the value of the work set in place or material delivered upon premises up to date of the submission of the same. Final payment in full of contract and extras shall be made within thirty (30) days from the completion of the sheet metal work, regardless of the final settlement of the building as a whole or for any other work. When a minor portion of contract or extras remain to be completed, payment of 15 per cent retainer is to be withheld not to exceed thirty (30) days, the total amount of contract and extras to be then paid, less double the value of such uncompleted minor work.

8. *The sheet metal work in the contract is guaranteed for a term of one (1) year after final completion of this contract.

9. The above clauses, 1 to 8, inclusive, shall take precedence over any conflicting provisions in the contract or specifications.

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*Section 8 was originally for five years. After considerable debate it was changed to one year, and then finally stricken altogether. It should be remembered that this is a tentative draft.

first called upon. Buck outlined the activities of the National Warm Air Heating and Ventilating Association, in which he has been very active, and informed the meeting that at the last meeting in Chicago a new committee was appointed, known as the Better Business Committee. It will be the duty of this committee to work out and arrive at the solution, if possible, of "What's wrong with the furnace business?" This includes not only the matter of adoption of better warm air heating standards, but business methods in all of its many phases. At this point, Buck paid the Michigan Association a wonderful compliment for the step taken toward better bookkeeping and accounting methods. Stating that those who do not avail themselves of the service will be missing a wonderful opportunity. Buck stressed this point, "Be careful what action is taken, go slow, be sure you are right and then hit the ball hard." Co-operation of the new committee with any action taken by this association was assured.

Several other men were called upon, including such personages as Ros Strong, Frank Herzberg, Charlie Conway and Homer Brundage. The majority leaned toward the "Certified-Heat" plan, Homer Brundage stating that it was just what the furnace business needs. He also took the opportunity to endorse the campaign for better bookkeeping recently undertaken by the association. It is his opinion that one of the greatest evils in the business is the lack of knowledge of costs which leads to unintelligent estimating.

The following were appointed from their respective localities to sit in the committee meeting following the general session: J. L. Fuller, Detroit; Frank Herzberg, Saginaw; Al Nydam, Grand Rapids; Ros Strong, Coldwater; C. Amann, Jackson; J. G. Wiersing, Lansing; E. C. Taylor, Dowagiac; Homer Brundage, Kalamazoo; Ed Karrer, Flint; Mark Woodbury, Owosso, and E. A. Phillips, Durand.

J. L. Fuller made a motion that state legislation be sought and a committee appointed to co-operate with the Better Business Committee of the National Warm Air Heating Association. Supported by E. E. Karrer, and was carried.

A motion was made by J. L. Fuller that a plan of "Certified-Heat" be developed and promoted by the state association, executed by the local associations and individuals. Supported by H. F. Brundage, and was carried.

New York State Sheet Metal Contractors to Meet June 12 and 13, Syracuse

The following is the tentative program of the New York State Sheet Metal Contractors' Association to be held at Syracuse June 12 and 13:

Tuesday, June 12

Short address of welcome by a member of the Syracuse Association of Sheet Metal Contractors.

Response by H. A. Daniel, President of the State Association.

What the National Association Is Doing, by W. C. Markle, Secretary of the National Association of Sheet Metal Contractors. Mr. Markle will also explain and exhibit some of the work of the new manual which is now being completed by the national association.

The Cleveland Convention: Reports by Messrs. John J. Yager, Buffalo, and Otto Goebel, Syracuse.

1:00 p. m. Adjournment for lunch.

Afternoon Session Begins at 2:30

Report of Registration Committee.

Discussion on Trade Manual.

Discussion on Affairs of the National Association.

Consideration of the advisability of an amalgamation with the United Roofing Contractors' Association and the Slate Roofing Contractors' Association.

Reports of Officers.

Why an Organization? What it can do, by W. S. Hays, Secretary of the National Slate Association; W. C. Markle, Secretary of the National Sheet Metal Contractors' Association; H. A. Daniel, President of the New York State Association.

Why Tin Roofing Should Come Back, by Harry Burgess of Elmira.

Discussion.

Films showing protection against fire of tin roofing.

Adjournment.

8:00 p. m. Evening meeting to view Armco films.

Wednesday, June 13

Morning session, 9:30 a. m. What the National Warm Air Heating Association is doing, by Professor Willard of Urbana, Ill.

The Furnace Code of the National Association, Thomas Woodward, President of the Furnace Club of Rochester.

Discussion.

How to establish business and bank credit, by a member of the City Bank of Syracuse.

Opening of Question Box.

Discussion.

12:30. Adjournment for lunch.

Address by a representative of the Sheet Steel Trade Extension Committee showing what this organization is doing to advance the interest of sheet metal contractors.

Afternoon Session

2:00 p. m. What sheet metal contractors should do to coöperate with the Sheet Steel Committee, the Copper and Brass Research Association and the Warm Air Heating Association.

Reports of Committees.

Resolutions.

Nomination and election of officers.

Installation of Officers.

Detroit Warm Air Heating Men to Hold School in Heating June 4, 5, 6 and 7

The Detroit Warm Air Heating Contractors' Association will hold a course in warm air heating in Detroit June 4, 5, 6 and 7.

The instructor will be J. C. Miles of the Warm Air Furnace Fan Company, Cleveland, Ohio. All warm air heating contractors, manufacturers, jobbers from Detroit and surrounding cities are invited to attend the school. The place in Detroit in which the school will be held has not yet been decided upon, but anyone interested in attending the school should get in touch with J. L. Fuller, 459 York Street, Detroit.

Welding Gains in Manufacturing Industry, as Metal Process

Now Applied to All Forms of Construction for Saving Labor and Materials

By W. SPRARAGEN, Secretary American Bureau of Welding

WELDING steel parts is no longer a novelty. Industrialists have utilized it as a means of lowering manufacturing costs, speeding up production and improving quality of output.

Large electrical manufacturing companies have practically abandoned their foundries and are now making their huge motors and generators from welded steel parts. Sheet metal contractors are finding welding equipment of inestimable value in many phases of their work. The advantages are lighter weight for the same mechanical strength, better electrical characteristics, elimination of expensive machine work and reduction in cost.

Welding Structural Steel

During recent years welding has been applied to the fabrication of large structures. Many experiments have been made in this country and abroad on small specimens and then on larger to show that welding is safe. It is no trick to make a weld of proper cross-section and materials. A large number of small ships, tanks and buildings, all welded, have sprung into existence in all parts of the world.

The engineer, however, must do more than show that a thing can be done. He must be able to produce the same results repeatedly with surety, and, moreover, he must produce the job as cheaply as possible. In the laboratories of companies, universities and the Bureau of Standards, trained experimenters are at work obtaining fundamental unit design data which will enable engineers throughout the world to erect steel structures with a known factor of safety and with a minimum of material and labor costs.

A new engineer is coming into existence, known as a welding engineer. He must have a thorough knowledge of what materials are suitable for welding, how to design structures, how to specify the exact amount of welding needed and where it should be located, proper qualifications for welders and proper inspection and supervision of the final project.

Saves Tons of Steel

In Australia, pioneers of welding have erected enormous gas holders, 150 feet in diameter, with a saving in steel tonnage in the frames of 40 per cent compared with riveting. About a year ago in this country a five-story all-welded heavy duty warehouse building was erected at Sharon, Pa., where 100 tons of steel were saved. However, this was a first job, and the engineers were extremely careful, so that the total cost was slightly higher than that of a riveted structure.

In the accompanying article the reader is given by Mr. Spraragen a cross-section of the vast strides that have been made in the welding industry. In the article he points out the time saving feature and its relation to the reduction of manufacturing costs. There are features described in this article which the sheet metal contractors can not afford to overlook. Possible new business opportunities for the sheet metal contractor are also unveiled. Welding of metals has come to be a permanent acquisition to the manufacturing world and the sheet metal contractor who does not get in the swim with it is missing some wonderful opportunities.

A few months ago a large factory building in Philadelphia, covering 140 by 550 feet, was completely fabricated by welding. A saving of 40 per cent of the weight of steel was obtained in some of the truss members as compared with a similar riveted design. The saving is brought about largely by the elimination of the gusset plates and the use of lighter sections in trusses, which are not weakened by reduction of effective cross-sections by rivet holes.

Two railroad bridges have already been successfully fabricated by welding, with equal savings in steel.

Must Abandon Old Ideas

In order to effect economies the designing engineer must abandon some of the old ideas and practices that he has followed in designing for riveting. Even the shapes of the steel parts are different. For example, girders are made up entirely from welded flat plates forming the necessary flanges, webs and stiffeners, instead of the angle-irons necessary for riveted constructions. Transmission of stress is direct and not through angle-irons, thus resulting in a stiffer construction. Equal economies result in simpler drawings, handling of less material and laying out of members. Accurate alignments to match up rivet holes are not necessary. Additions to old buildings can be made without removing existing walls. In welding a new steel structure to an existing one, only small openings need be made. It is thus evident that in hotel or apartment additions, the noise, dust and dirt resulting from the tearing out of brick and concrete walls and floors may be very greatly lessened by using the welding process.

Two Forms Commonly Used

In structural work two forms of welding, electric and gas, are most commonly used. In the electric arc

process one side of an electric circuit is attached to the parts to be welded, whether it be a steel column of a building or the parts of a broken machine. The other side connects with a steel wire called an electrode which is gripped in a suitable holding tool in the hand of the welder.

The operator touches with this electrode the parts to be joined and then quickly draws it a very short distance away, forming an arc. The arc creates an intense localized heat which melts the parts to be connected and also the small wire. They amalgamate in a molten pool of metal, usually not more than one-half to three-quarters of an inch in diameter. As the arc moves along, the molten metal in back of it almost instantly solidifies and forms a homogenous mass. The depth of penetration of the molten metal is not great, usually not more than one-eighth of an inch.

The gas welding process differs from the electric arc in that the source of heat is a gas flame formed by the combustion of oxygen and acetylene by means of a suitable torch. A small localized flame is produced which is so hot that steel is quickly heated up to the melting point. The operator, at the proper moment, melts a small wire, called the welding rod, into the molten pool formed by the parts that he is joining.

Welding in Motor Industry

Mass production and the automobile industry are almost synonymous. Better and cheaper cars are being turned out in huge quantities. It is not generally recognized, however, that welding made this possible through the assembly of small parts from standard sheet and bar stock. In this work stampings, or punch press operations, play a very important part, as thousands of identical pieces are turned out daily. The die and not the skill of the operator governs the operation, and the speed is controlled by the pace of the machine.

It is the same with forgings. Lightness combined with strength and speed of production is fast causing them to supplant castings. Welding makes possible forgings and stampings into integral parts of strength, lightness and symmetry at a speed unequaled by any other process.

Ford Company Is Cited

The Ford Motor Company is now one of the greatest welding assembly plants in the world. The new car's only casting is in the power plant. If one steps into the production plant he might see an operator take two pieces, one a forging and the other a stamping. With virtually no effort they are clamped in a peculiarly designed machine. There is a flash, a shower of sparks and the next instant you see the parts have become one.

This type of welding is quite different from that previously described and is known as resistance welding. In this process the parts to be joined are made a part of an electrical circuit through the secondary of a suitable transformer. High currents at a low voltage are passed through the parts. They are drawn apart for a second. There is a shower of sparks as the arc is formed and the parts are quickly heated up to the correct temperature. The current is turned off almost instantly and the same machine quickly forces the parts together at an enormous pressure in one piece.

Aids Mass Production

All-steel automobile bodies are turned out by thousands daily. Resistance welding is the principal method of assembly. The type most used, however, is different and is known as spot welding. Steel sheets, forming the parts to be joined, are placed between suitable copper electrodes about an inch in diameter. These copper electrodes are usually tapered and are part of an electrical circuit. A large current is passed through them and the sheets are joined in a few seconds. The current is turned off and pressure is applied through the electrodes and the steel sheets are joined in a spot about one-half inch in diameter.

Welding has become an important manufacturing process and it may be used for joining parts as small as watch stems or in the assembly of huge ships and buildings. It lends itself easily to mass production methods. It is noiseless and economical. These advantages are such that welding is becoming recognized as one of the greatest mechanical processes of modern times.

"Fulton" Expansion Regulator

From The Wise Furnace Company, Akron, Ohio.

Can you tell us who makes the "Fulton" Expansion Regulator?

Ans.—Chaplin, Fulton Manufacturing Company, 36 Penn Street, Pittsburgh, Pennsylvania.

Repairs for "Jahant" Heater

From Anderson Furnace and Repair Company, Galesburg, Illinois.

Where can we secure repairs for the "Jahant" heater?

Ans.—You can get some of the grates from the Northwestern Stove Repair Company, 654 West Roosevelt Road, Chicago, and some of the other repairs from Schleicher Sheet Metal Company, Kenmore, Ohio.

Tubular Core for Chicago Pneumatic Tool Company' Radiator

From L. R. Hamman, 507-511 East Prairie Avenue, Decatur, Illinois.

Please inform me who makes the tubular core for the Chicago Pneumatic Tool Company's radiator used on their Pneumatic machine. The core measures 36" x 30¼" x 3¾".

Ans.—Young Radiator Company, Racine, Wisconsin.

"Robertson" Ventilator

From Carter and Fillman, Canal and Bridge Streets, Newcomerstown, Ohio.

Will you kindly advise who makes the Robertson ventilator.

Ans.—H. H. Robertson Company, Pittsburgh, Pennsylvania.

Thank You, Mr. Saunders, We Sincerely Appreciate the Compliment. The Pleasure Was All Ours.

Here is a letter from J. M. Saunders, Secretary of the Cleveland Convention Committee, which was responsible for the success of the National Association of Sheet Metal Contractors and the Ohio State

Constructing Pattern for Gasoline Tank to Be Used in Motor Launch

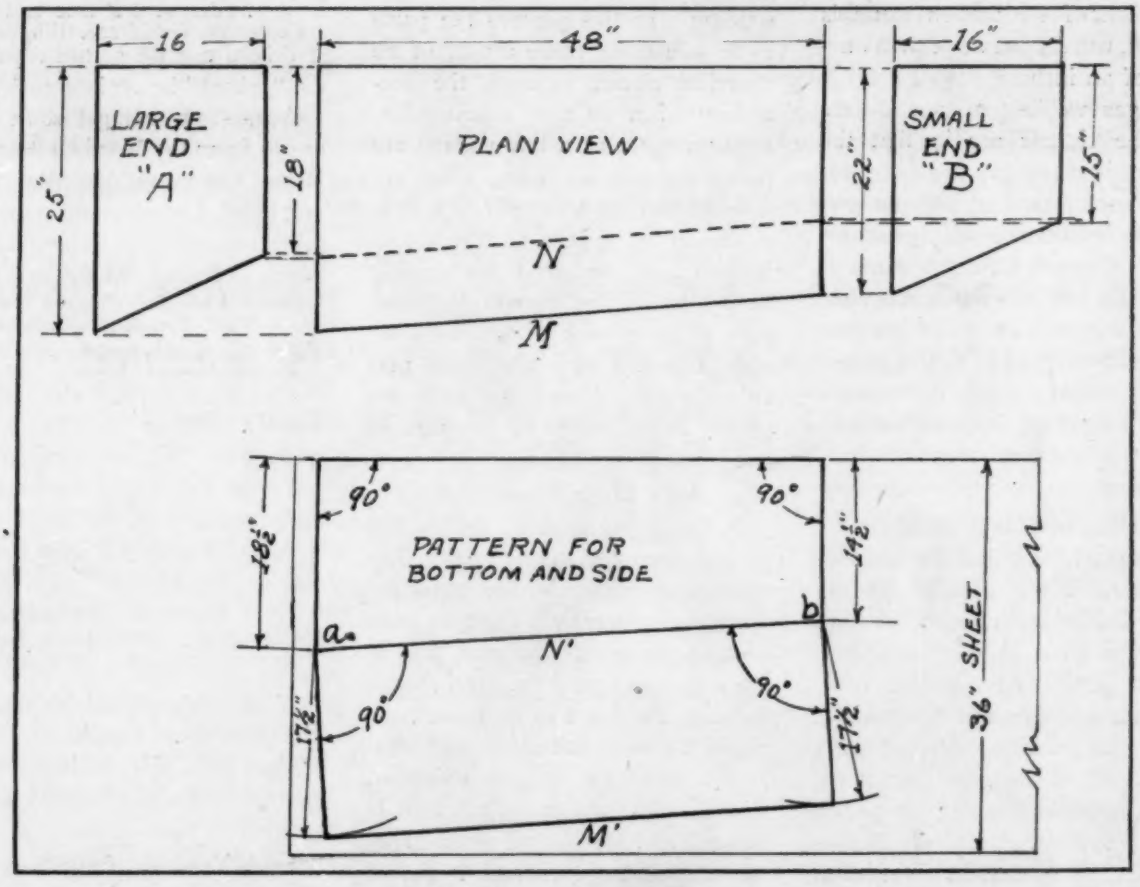
Here Is Layout Which Calls for Use of Triangulation

By O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis

RESPONDING to the inquiry of a subscriber of Clinton, Ohio, for pattern for tank according to sketch, will say the accompanying drawing is a reproduction. The twist you speak of is no doubt caused from the difference of the flare of the lines M and N of plan. These should be parallel. If the lines are drawn to conform with the measurements of sections "A" and "B," the line N will not be parallel to M, and the only way you could develop it to avoid the twist you speak of is to use triangulation.

But on a job of this kind it is permissible to average the line N so that it passes parallel to M. This makes it about 18½ inches on the large end for bottom, and 14½ inches for the small end. This is laid off in the pattern as we show, which gives line a-b, and then the slant line can be picked, and using a and b as center, strike arcs. With the steel square placed along N', you can mark off the end lines, and then draw the top line M'. These instructions are easily followed.

It is in this pattern where trouble can be met with, but if procedure outlined is followed, that should make the tank come out square. The other parts are just straight pieces, and you can always add them.



Patterns for Boat Gasoline Tank

Sheet Metal Contractors' convention in Cleveland last week. Mr. Saunders writes as follows:

To AMERICAN ARTISAN:

"In recording the outstanding features of the success of the 1928 convention here in Cleveland, one is deeply impressed with the splendid support which AMERICAN ARTISAN gave. For this the Cleveland Convention Committee is truly grateful.

"The industry is indeed fortunate that we have trade journals of inestimable value to it.

"Again thanking you and with best wishes, we are."

Yours very truly,

J. M. SAUNDERS.

A Warm Air Furnace and Register Display in Which Considerable Attention Has Been Paid to the Lighting. Such Windows Attract Attention Unquestionably and Help Pay the Rent

Keen Competition Demands Use of Display Windows Correctly Made and Adequately Lighted

Windows Give Passerby First Impression of Business and Industry Represented

By George Duerr

ONE very important phase of retail selling of which the sheet metal contractor and the warm air furnace installer are not taking full advantage is the properly constructed window display. Comparing the establishments of these industries with those of almost any other phase—the hardware branch for instance—one gets the impression that the products of the sheet metal and warm air heating industries are at best makeshifts; something that must be put up with because of a lack of sufficient money to pay for the real thing.

In order to wean people away from this impression these industries have got to put on a better "front." What is meant here is very well described in the words of Leslie F. Williams, illuminating engineer of the Biddle-Gaumer Company, Philadelphia, who said: "Keen competition demands the use of show windows correctly made and adequately lighted, and that every advantage be taken of their advertising and selling value. Their lighting and display is very important. *It is from the impression that the window makes on the passer-by that he forms his opinion and estimate of the establishment" (and the industry he represents, Mr. Williams might well have added).*

So many of the members of the warm air heating and sheet metal fraternity are prone to say, "Oh yes, we hear a great deal of discussion about the value of a store on Main street and of the pulling power of the window display, but that "stuff" does not apply to me and my business. Anyhow most of this talk is theory. There are no statistics available to prove that money spent in higher rents to bring the business out on the Main street and to make representative window displays will justify this investment."

In reply to these efforts to justify their tendency toward procrastination, I want to say that illuminating engineers have already made elaborate studies of the economic value of

Sheet Metal, Warm Air Furnace, Register and Fittings Window Display Which Is Doing Good Work in Increasing the Business of Its Owner. Note the Valence Stretched Across the Top of the Window, Shielding the Source of Light from View and Eliminating the Glare

good lighting in show windows and store interiors. These studies have not only gone into the increased effectiveness of the well lighted window at night, but also the effect of using light in the windows during the daylight hours to eliminate reflections on the window, which naturally prevent the contents from being visible to passers-by.

The studies that have come to my attention are concerned with men's clothing stores, drug stores, furniture stores, cigar stores, and women's ware clothing stores. The check made was that of actually counting the number of persons passing the store during any particular hour of the day or night. The number who were attracted to the window both before and after the installation was made and the number who not only were attracted to the window, but who actually entered the stores both before and after the installation of the lighting system was perfected. In each case the increase in business amounted to about 10 per cent.

In the case of the men's clothing store, under the old lighting system the bill for electricity for lighting the store and the window totalled $229. The lighting system of the store and the windows was then changed so as to employ scientific methods of lighting and the cost of illumination rose to $819 an increase of $590 per year. Without going into the details of the cost, this merchant by increasing his yearly cost by $590, was able to increase his final profit from $4,122 to $6,106.

In the case of the drug store the increase in overhead amounted to $671 due to the new lighting equipment for the store and the window display. The increase in sales in this case amounted to 10 per cent or a profit of $3,836 instead of the original profit of $1,737.

In the case of the furniture store having three floors each 30x90 feet and two display windows 12 feet wide. The increase in yearly expense caused by the installation of proper lighting methods in the store and window amounted to $2,172 or an increase of $1,505. The per cent of profit was increased from 32 to 43.6, and the actual money increase in profit amounted to $3,668. In other words by making the additional yearly addition to the overhead of $1,505 the furniture man was able to increase his yearly profit by $3,668. Increases were also shown in the case of the cigar store and the women's clothing store.

To substantiate still further the idea that it pays to make proper

Group Picture of Texas Sheet Metal Contractors During Recent Texas State

Another Warm Air Furnace and Register Window Display in Which Particular Attention Has Been Paid to the Lighting Effect. Lighting Does Play an Important Part in the Window Display and the Sheet Metal Contractor Who Does Not Take Full Advantage of It Is Missing an Opportunity

window displays and have them adequately lighted, I want to call attention to the case of a merchant who, in order to test the thing himself, he took everything out of his windows and left them bare for three weeks. He normally had gross sales of $6,050 a month, but during the time of this test, the candy sales dropped 32 per cent, the soda business dropped 14 per cent, the prescription dropped 2 per cent, specialties 41 per cent, rubber goods 22 per cent, toilet articles 18 per cent, and stationery 10 per cent.

The items named were those ordinarily shown in the window. Instead of the gross sales being $5,000 which might reasonably have been expected during those three weeks, they were but $3,156 or a loss of 37 per cent.

The next step in the program is how is the successful display made? Perhaps what *Light,* a publication devoted to the subject of proper lighting of stores and windows, has to say on the subject will be interesting and instructive.

"A Word About the Window Installation"

"True, not every store window need have elaborate facilities, but every window should have a good lighting system. The test of good window lighting is efficient distribution of light upon the display without loss upon the street, and without glare from exposed lamps. The usual practice is to locate outlets above the glass at regular intervals along the window front and along the sides when the window is deep. In island windows, concentrating type reflectors should be placed around the entire window to equalize the light.

"The actual method of installing window lighting equipment depends entirely upon the construction of the window. Unless the ceiling is especially high, the reflectors are generally mounted on the ceiling close to the window. Frequently, it is desirable to conceal the equipment in a box or trough built in the upper front corner of the window. Where the window has a false ceiling, it may be preferable to install the reflectors above the ceiling with the openings flush with the ceiling, using metal molding for finishing.

"Where the distance above the window glass to the ceiling is fairly large, it will usually be found best to support the reflectors by brackets on the transom bar close above the window glass either by

ntion. The Scene Is That of the San Jacinto Battle Grounds, Houston, Texas

Here Is a Warm Air Furnace Installer Who Has Created an Atmosphere of Warmth in His Furnace and Register Window by Using Light and Growing Plants. He Finds That Attention to Windows Pays Big Dividends

individual brackets for each unit or by supporting the conduit from which the units are suspended.

"Where the windows are open backed or where the background is polished, a curtain or valance should be used behind the units to screen them from the view of persons within the store and to eliminate their reflections in the polished background. A curtain should also be used to conceal the lighting units from view from the street.

"The actual spacing and size of lamps used will depend upon the illumination requirements. In the better grade of windows a 12-inch spacing is very common and is to be recommended. A spacing over three feet will not, in general, give satisfactory illumination. In practice, then, the spacing usually falls within the range of 12 to 36 inches, with a spacing between 18 and 24 inches in the majority.

"Either 100, 150, or 200-watt lamps may be used for general window illumination depending upon the spacing and the intensity desired; 500-watt lamps, of course, for the installations to eliminate daylight reflections.

The Installation Should Have Flexibility

"Outlets should be available for the use of spotlight or floodlight projectors when desired. When once an adequate number of outlets has been installed, the illumination can be varied at will by manipulating the size of lamp used, or by arranging the lamps on two or more circuits so that alternate lamps may be turned on or off. Convenience outlets should be placed in the side walls or perhaps in the floor of the window for attaching lamps or other electrical appliances which are on display or which might be used to contribute to the effectiveness of other displays.

"In addition to the general overhead lighting, the use of spotlights, floodlights, and footlights is recommended for high class windows where greater flexibility in lighting effects is desired.

Spotlights and Floodlights

Spotlights serve to focus attention on a feature article in the window by "spotting it" in much the same manner as an important character on the stage is brought into prominence by means of a spotlight. Spotlight effects are particularly pleasing in connection with color lighting.

"Window floodlights are used for much the same purpose as window spotlights, though usually the light is not concentrated as sharply but is spread gradually from a strong center beam.

Footlights

"Footlights may be built permanently into the window, or they may be obtained in portable sections. Provision is usually made for the use of color with these as well as with the other lighting accessories. Footlights offer a means of adding variety in the lighting when used alone; when used in conjunction with overhead lamps they serve the very useful purpose of softening harsh shadows which frequently occur when the light comes predominantly from one direction. For example, without the use of footlights a broad brimmed hat worn by a wax model would cast a heavy shadow over the features and thus detract from the appearance.

Color Lighting

"Color is attractive and commands attention. Plenty colorless light from clear or Mazda Daylight lamps is effective where the goods are displayed primarily for the convenience of the customer in making a selection, but the proper use of colored lighting enhances greatly the more artistic window displays, and tests have shown that, for equal wattage, color in the lighting increases considerably the attention value of the display window.

Suggestions for the Use of Colored Light

The secret of the successful use of colored light is in making the color suit the display. Each color tends to produce a certain definite atmosphere and psychological effect, as outlined below:

Red—The most striking and lively color. Suggests action, fire, passion, tragedy, heat, danger.

Rose—Soft and inviting. Suggests health, beauty and love.

Orange—Vivid and gay. Suggests warmth, the autumn.

Yellow—Cheerful and inspiring. Suggests light, sunshine, happiness, springtime.

Green—Cool and refreshing. Restful and soothing to the eye. Suggests life, vigor, youth, summer, the outdoors.

Blue—Soothing and subduing. Suggests coldness, the night, moonlight, winter, symbolic of truth, fidelity, dignity, stability.

Purple—A rich and royal color. Suggests luxury, splendor, dignity, or may give a somber or mysterious impression.

White—Suggests light, purity, cleanliness, peace.

The various colors and tints may be obtained by the following combinations of lighting units:

Red Tint—One white to three or more red units.

Rose—Red and blue units in equal numbers.

Orange—One amber to two red units.

Yellow Tint—White and amber units in equal numbers.

Green Tint—One white to four or more green units.

Yellowish-Green—One amber to three green units.

Greenish-Blue—One green to three blue units.

Blue Tint—One white to five or more blue units.

Violet—One red to two or more blue units.

"In general, a color tint, or a combination of two or more color tints, is preferable to a solid pure color. It is usually advisable to determine by experiment the color effects which are best suited to each particular display. Striking results are obtained by the use of a spotlight, focusing clear light on the central object of the display while the rest of the window is flooded with harmonizing colored light.

"The effective use of color requires a flexible system of window lighting equipment and circuits to permit easy control of the variations of light intensity, direction, and color combinations that are desired. Where color lighting is used, the window background is usually of a light neutral gray, in order to be readily adaptable to the color effect produced by the lighting."

The *Electrical World* has this to say about window lighting in day time:

Advantage of Artificial Light in Show Windows in the Daytime

"Until twenty years ago artificial light was considered something to be used only when daylight failed. Everywhere, except in mines, tunnels and other subterranean places, the function of artificial light was to extend the 'day' somewhat. But the great increases in the luminous efficiency of light sources which have been achieved within the present century have radically changed this viewpoint. Many stores, offices and factories in our cities use a great deal of artificial light during their operating hours regardless of the daylighting conditions outdoors. Of course, on sunny days less artificial light is needed in most of these places than on cloudy days.

"The show window, however, is a place where the contrary is generally true. All are familiar with the annoyance of bright images of exterior surfaces reflected from the glass in show windows. These often cause such a veiling brightness that the display cannot be seen satisfactorily from outdoors. The brighter the objects, the brighter are the reflected images; therefore the condition is particularly annoying on a bright, sunny day.

"A practical solution is to illuminate the display by means of artificial light to an intensity which will make its brightness so great as to render the brightness of the reflected images of exterior surfaces negligible. It is readily seen that if the display and its background possess high reflection factors, less artificial light is needed than if they are of low reflection factor. The intensity of artificial illumination necessary, as has been pointed out, depends upon various factors. It must be of the order of magnitude of 100 to 500-foot candles and sometimes even greater.

"Such installations are in existence, and it is likely that they will rapidly increase in number. Show windows are an important factor in merchandising, and merchants cannot afford to have them ineffective when they can be made effective by reasonable expenditures for artificial light."

Howard C. Yost Enters Sales Department, Inland Steel, at St. Paul

Howard C. Yost has become affiliated with the sales department of the Inland Steel Company, Chicago, and will be located at the St. Paul, Minnesota, district sales office.

Mr. Yost has recently been with the Lewis Bolt & Nut Company, Minneapolis. For many years he was in the metallurgical department of the Carnegie Steel Company at Pittsburgh.

Random Notes and Sketches
By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

At the convention last week in Cleveland I had the pleasure of meeting and dancing with a great many of the wives of sheet metal contractors from various parts of the country. The entertainment committee of the convention did a wonderful job and they deserve all the praise in the world for the way in which they planned and carried out the entertainment feature of the convention. It was a big success from start to finish. I also want to express my appreciation for the hospitality extended to me at the convention by those members of the Associated Sheet Metal Employers' Association of Chicago who were present. It was all most enjoyable. These experiences will have a prominent place in my file of pleasant memories.

* * *

What of It?

"Before we were married, you promised to dry the dishes every evening for me."

"Oh, well, that was a campaign promise."

* * *

Save Them a Cursory Examination

"Do you know if the editor has looked at those poems I sent him?"

"Yes, sir; he glanced through them this morning."

"Oh—just a cursory examination, I suppose?"

"You're right, sir. I never heard language like it in my life."

* * *

No Foolin'.

An old southern planter was discussing the hereafter with one of the colored servants. "Sam," he said, "if you die first I want you to come back and tell me what it's like over there. If I die first I'll come back and tell you what it's like."

"Dat suits me, Massa," replied the old Negro, "but if you dies first Ah wants you to promise me dat you'll come back in de daytime."

In Norwood Park, a suburb of Chicago, a custom prevails of lighting a community tree on Christmas eve for the benefit of the children. After the ceremonies are over and the gifts have been distributed to the children, the public spirited citizenry indulge in the practice of singing Christmas carols before each home having a lighted candle in the window.

Harry J. Dettmers, President of the Associated Sheet Metal Employers of Chicago, is also President of the Community Council of Norwood Park. Therefore when the singing began on last Christmas eve Harry was right out in the front rank of the singers. The group had performed before quite a number of homes when they came to the home of Mr. Soper. Now Mr. and Mrs. Soper, being congenial citizens of Norwood Park, had arranged for a little midnight supper for a few friends on this particular evening. Harry and his cronies, seeing the table all set for dinner, decided this would be a good place to imbibe a little good cheer. They entered, with Harry foremost. Mrs. Soper, anticipating the desire of her invited guests to dance, had removed the rugs from the floors, which were highly varnished and polished. The snow and ice formation on the bottom of Harry's shoes made poor contact with these highly polished floors, and Harry took a neat little spill, with no harm to himself. Unfortunately, however, his foot came in contact with the bird cage, which in turn upset the gold fish bowl, spreading the gold fish, water, glass and all on the floor. Whereupon Mrs. Soper chased the entire group out of the house.

The next day, Harry feeling very remorseful, started out to the Soper home to apologize for what he had done the night before. He cut through an alley and encountered Mr. Soper coming in the opposite direction bent on apologizing for his rudeness on the previous evening. They conversed a moment or two and were then seen by an eyewitness to disappear into Mr. Soper's basement, where apologies appropriately and adequately were made on both sides.

* * *

A Monkey Wrench in the Machinery

This morning was one of those spring mornings, if you know what I mean. I imagine the poets feel like poeting on mornings like this. The rest of us just whistle.

Anyway, that's the way I felt. The world was bright and it was pretty good to be alive. I opened my mail, humming under my breath. I took out a circular from an insurance man and read the following good news:

A BRICK (accompanied by picture) from a chimney fell and killed a girl and the parents sued the owners for $50,000.

A CORNICE fell from an office building and killed a young man. Will probably cost owner $20,000 to settle. (I guess the artist didn't know what a cornice is. He has no picture for it.)

A WINDOW SCREEN fell from a warehouse and killed a man. Cost, $10,000. (Picture of falling screen.)

AN ELECTRIC SIGN fell from a bank building and fractured a man's skull. (Picture of the sign.)

AN AWNING fell on a woman. (Picture of the awning.)

AN INKWELL dropped out of a store window and killed a young man who was walking by. (Picture of falling inkwell.)

IN A SHOE STORE a young girl trying on shoes was scratched and infection developed. She died.

I wonder how in h—l I got down here to the office this morning without getting killed or maimed. What a world!

* * *

I had the pleasure of a telephone call from Roy Harrison one day this week. Roy is preparing for a summer cruise on his yacht, so it seems.

Tinker Says Better Business Committee of N. W. A. H. Should Teach Installers Attitude of Service

Says Desire for Volume Business Blinds Occasional Installer to His Responsibility for Service

THE Better Business Committee of the National Warm Air Heating Association can well afford to extend activities into the field of transforming the dealer or sheet metal contractor into an efficient warm air heating engineer or removing him from the field entirely, is the opinion of A. C. Tinker, Conneaut, Ohio. The committee should teach the proper attitude that should prevail between the installer and the consumer to the end that a sale will not be made without regard to the customer's well being and satisfaction.

At the present time many in the business operate to see how many sales can be made and whether or not payment can be forced without regard to service rendered—two things that are detrimental to the industry. Unless the installer can be taught to give the customer what he should have, not what he (the customer) thinks he should have, not being in a position to know, he is not a fit representative of the industry.

To illustrate, G. W. Elwood, who operates a gas station, grocery and lunch room west of Conneaut on a main road, asked us to lay out a heating plant last fall for his building. A plan of the building was made showing B.t.u. loss per hour for each room, and the proper pipe area. From this layout an estimate was prepared and presented. Mr. Elwood said he would let us know later when he was ready to have the installation made, as he was not sure they would keep open during the winter.

Some time later he had a furnace put in by another man, presumably at less money than we had asked. The Code requirements for the main store room alone were 307 square inches of leader pipe, which would have to be divided so as to deliver on a flat ceiling for a part of the way back, with the greater loss in this end. The remainder of the ceiling followed the rafters. This made the high point above the level about 5 feet. Naturally heat delivered at the high point would not circulate on the lower level ceiling.

The firm that made the installation piped the room 113 square inches (against 307 square inches Code requirements), delivering onto the highest ceiling. The writer called on Mr. Elwood this spring and explained to him why there was 15 degrees difference between the front and back end of the storeroom (by difference in construction of ceiling and inadequate piping). I pointed out that in firing his furnace to heat this room terrific stack losses were caused to get what comfort he did. The chimney got so hot you could hardly hold your hand on it.

An additional room was being built on the east as a new lunch room. The entire building will have to be refigured as to heat loss and piped to that loss with capacities up to requirements. This will not be done, however, by the firm that made the original installation, which is invariably the case.

The firm that makes an installation that does not give the maximum or required comfort, economy and satisfaction, is only cutting off its sales possibilities and dissipating its good will.

The firm that made this installation does a very large composition roofing business and only install furnaces during weather they cannot work out of doors, but nevertheless they do a great deal of harm to the industry when they turn out work of the character described.

Furnaces vs. Heating Service is still on trial for the rise or fall of the industry. No individual in the profession can escape his share of the responsibility.

New Catalog on Garland Issued by Detroit-Michigan Stove Company

The Detroit-Michigan Stove Company, 6950 Jefferson Avenue, East, Detroit, Michigan, has issued a new catalog on the Garland super-thermal warm air furnace.

The description includes all sections of the furnace mentioned thoroughly illustrated in their knocked down state, giving the buyer an excellent opportunity to learn of just what the furnace consists and how its various parts are fitted together. The accompanying description is designed to give the installer talking points expressed in a manner that makes for ease in the presentation of the story to the prospective purchaser. The furnace is then shown completely assembled without the casing.

The "70" series pipe and pipeless furnaces are also given considerable space in the catalog, as are the "80" series pipe and pipeless furnaces.

The center of the book contains an illustration of the Garland super-thermal "70" series furnace in cross-section showing the complete furnace from ashpit, grates, firepot, to the radiator, emphasizing the special points of interest. This feature is an education in the presentation of sales talk in itself and should appeal to the furnace installer who is desirous of improving his methods of presentation.

The fifth edition of the Standard Code has also been incorporated in the book, making it not alone a medium of information about Garland's latest developments, but a manual of information that can be used by any furnace installer's salesman. Write for your copy now.

Figuring Heat Losses From Buildings in Hot Blast Heating

This Is the Second of a Series of Articles by Mr. Torr On Hot Blast Heating

By T. W. Torr, Rudy Furnace Company

TO figure heat losses from buildings it is necessary to know the factor, or constant, that applies to different types of construction under consideration. The constants which follow are taken from the best authorities.

A heat loss constant, or factor, is the amount of heat, expressed in B. t. u., that will pass through a square foot of the construction to which it applies every hour for every degree difference between the inside and outside temperature.

Glass and Outside Doors

Single glass	1.1
Double glass	.55

Double glass is based on three authorities each giving respectively .60, .45, and .47. Therefore, .55 should be conservative.

Walls

Clapboards, sheeting, studding, lath and plaster, .28. If building paper is used this would be reduced to .23. Constant .23 covers a general type of frame or stucco construction in residences. It is the factor used by the Standard Code.

Brick Wall

Plain		Plastered One Side	
9″	.31	9″	.27
13″	.25	13″	.22
18″	.20	18″	.18
24″	.16	24″	.15

Hollow Tile

Plain		Plastered One Side	
4″	.33	4″	.29
6″	.27	6″	.25
8″	.22	8″	.20

Stucco, Hollow Tile, Furred, Lath and Plaster

4″	.18
6″	.17
8″	.15

Stone

Plain		Plastered One Side		Furred, Lath and Plaster	
6″	.85	6″	.79	6″	.56
8″	.70	8″	.65	8″	.46
10″	.64	10″	.59	10″	.42
12″	.56	12″	.51	12″	.39

Ceiling

Assuming an unheated space between ceiling and roof, the temperature of which will be 35 degrees in zero weather.

Joist, lath and plaster	.60
Floor laid on top of joist, lath and plaster underneath	.26
Floor, joist metal ceiling	.36
1″ floor, joist	.40

Note difference between first and second items. The absence of an attic floor is often responsible for the difficulty in heating bedrooms.

Floors

Assume the ground temperature to be 50 degrees.

4″ concrete	.31
4″ concrete and cinder fill	.29
1″ tile and 4″ concrete	.30
2½″ brick 4″ concrete	.29
1½″ wood floor, water proofing 3″ concrete	.10

Roofs

1″ wood, 5 ply paper, tar and gravel	.30
1½″ wood, 5 ply paper, tar and gravel	.26
2″ wood, 5 ply paper, tar and gravel	.21
2½″ wood, 5 ply paper, tar and gravel	.18
1″ wood, felt roofing	.36
Tin on wood strips	1.60
Tin on sheeting	.60
Tin on sheeting and paper	.43
Shingles on wood strips	.87
Shingles on sheeting	.43
Shingles on sheeting and strips	.21
Slate on wood strips	1.10
Slate on paper and sheeting	.50
Corrugated iron on strips	1.50
Corrugated iron on sheeting	.64

By selecting the constant that will apply to the construction the heat losses can be accurately calculated.

Example

The constant that will apply to the outside wall construction is .23. The building is to be heated to 70 degrees when it is zero outside. The temperature difference, therefore, is 70 degrees.

There will be .23 of a B. t. u. lost every hour through each square foot of outside wall exposure for every degree difference in temperature. Therefore, square feet outside wall exposure × .23 equals the B. t. u. that will be lost through this part of the construction for one degree difference. As the heating requirements are for 0 to 70 there will be 70 difference, so exposed wall surface × .23 ×70 equals total heat loss.

Heat loss through glass, roof, ceiling and floor can be calculated in the same way.

In figuring heat loss through floors a ground temperature of 50 degrees will generally apply. This means a temperature difference based on the difference between mean room temperature and 50 degrees would be used in calculating the heat loss instead of the difference between mean room temperature and outside temperature of 0.

The heat loss through a ceiling would have to be calculated according to the mean room temperature of the space between the ceiling and roof. The roof construction would be a factor in this calculation.

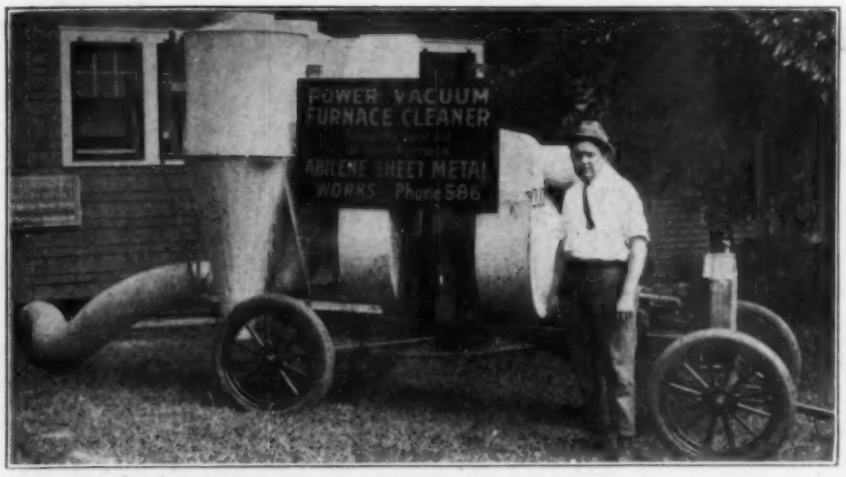
While a 35-degree temperature in zero weather has been found to be a fair average it is better to know accurately what this temperature is.

Heat loss by infiltration will have to be estimated according to the construction of the building. We usually figure the average well-constructed building will have one change per hour due to infiltration.

A cubic foot of air is raised one degree by .02 B. t. u. Let us consider a building of 75,000 cubic feet and our temperature rise will be from 0 to 70.

Seventy-five thousand cubic feet of air are raised one degree by 75,000 × .02 = 1,500 B. t. u. To raise it 70 degrees multiply 1,500 × 70 = 105,000 B. t. u. will be the heat loss due to infiltration. This added to the heat loss through the construction constitutes the total heat loss in B. t. u. per hour.

With a thorough knowledge of how to figure the B. t. u. necessary to restore the heat losses from a building to keep up desired temperature the volume can be figured without much trouble.



John Hull of the Abilene Sheet Metal Works Company, Abilene, Kansas, and His Furnace Cleaning Invention.

John Hull Develops New Type Vacuum Furnace Cleaner

Among the latest developments of interest to the warm air heating industry is a furnace cleaner made by John Hull, manager of the Abilene Sheet Metal Works Company, Abilene, Kansas.

The machine itself is mounted on a Ford chassis. Two large rotary pumps, which are the secret of the success of the machine, according to Mr. Hull, are propelled by the Ford motor. These pumps are Mr. Hull's own design. Made of all steel construction the pumps are so built that an unusually high static pressure is obtained. Because of the high pressure all dust, soot, lint, etc., can be extracted from the heating plant in such a manner that no dirt is aroused within the home.

Cleans Thoroughly

Specially built flexible metal tubing 12 inches in diameter is inserted into the furnace casing (outside shell covering of heating unit). This tubing is connected to the cleaner directly in front of the suction side of the rotary pumps. After the connection of the furnace casing is made all register pipes are closed. Each pipe is cleaned separately, throwing the entire vacuum of the rotary pumps into one passage. When this work is completed the heating element is cleaned. By this process all soot and scales that have collected in the firing chamber, smoke pipe and chimney are removed.

When the dirt first reaches the cleaner it is blown into especially constructed twin cyclone dust collectors also designed by Mr. Hull. Within these collectors the dirt and residue from the furnace are separted from the air, the dirt dropping into sacks below, which when full, are easily disposed of and the air is exhausted into the atmosphere through bents at the top of the collectors.

Patents Applied For

Patent rights on the cleaner have been applied for by Mr. Hull. So far as Mr. Hull can ascertain there is no machine of this particular type on the market. For this reason he anticipates a favorable reaction from the furnace world. Mr. Hull says his shop in Abilene will manufacture the complete cleaner for general sale. While the original investment is expensive, he feels that the demand for a machine of this type will offset its cost. "Every furnace should be cleaned at least once a year," Mr. Hull remarked. "Not only will a furnace heat better and give more radiation, but less fuel will be consumed."

The Vacuum, or Air process of cleaning furnaces, has the highest endorsement of the fire department and underwriters in all parts of the country where this vacuum process of cleaning has been advocated. If furnace users could see how badly the flues and pipes become blocked they would realize the value of vacuum or air furnace cleaning. Oftentimes explosions occur because soot has stopped up the heating system.

Although Mr. Hull has not placed any formal advertising due to the fact that he wished to get his patent rights secured before any announcement was made, the machine has been in continuous use in Abilene practically ever since its completion. While no such experiment has been made, it is stated that the suction from the machine while it is in operation is sufficient to take the clothing off a person standing in front of the pipe. Probably it is just as well for onlookers to play safe and stand to one side.

Horan Stay Hanger Company, Louisville, Has New Stay Gutter Hanger

The Horan Stay Hanger Company, Louisville, Kentucky, manufacturers of tin and galvanized roofing caps, have produced what they term Horan's Stay Gutter Hanger. The device is new on the market and is so constructed as to save time while on the erection job. It makes joints in the bead of the gutter with the hanger adjusted without catching under the eaves. The stay wire is adjustable and is said to hang box gutter, single or double bead, octagon ogee, fancy cornice, or any kind of hanging eave trough. It is easily and rapidly adjusted and is so made that it will carry the weight without sagging or spring from the drain line.

The hanger comes in any size from three to ten inches, and the hinged movement makes it convenient for placing in gutter before leaving the shop.

Full information can be had by writing the Horan Stay Hanger Company, Louisville, Kentucky.

Who Manufactures "Warner" Humidifier?

To AMERICAN ARTISAN:

We are interested in finding out who are the manufacturers of the "Warner" humidifier.

W. H. KRATZER COMPANY.
Detroit, Michigan,
May 31, 1928.

Strength in Iron and Steel Market Is Recognizable for the Entire Year

Pig Iron Inactive—Sheets Soft, Copper Demand Greater Again!

CONFIDENCE that a good summer is ahead of the iron and steel industry has received marked support this week, no small part resulting from the interchange of views at the spring meeting of the American Iron and Steel Institute.

Believe 1928 Volume Will Top 1927

Seeing the industry as a broad picture has stimulated a higher appreciation of the sustained volume of business. The subsidence in both demand and mill operations is more properly appraised as a seasonal factor, noteworthy for its moderation rather than its occurrence. Wide acceptance comes to Charles M. Schwab's belief that this year's volume of business will exceed last year's.

A new factor is increasing speculation as to the extent business is being held back for the third and fourth quarters. Such developments as failure of a large Eastern railroad to exercise its option for additional rail tonnage, the delay of the trunk lines in making equipment purchases, and the aloofness of most oil country buyers of pipe and tank work are regarded in some quarters as presaging a burst of business for late summer and early fall. Justified or not, the impression is growing that enough tonnage will be released to insure a brisk last half.

Consumers of iron and steel generally are buying strictly from hand-to-mouth. Third quarter orders are not yet a major factor and, excepting in pig iron, where the situation is weak, price is a minor consideration.

Sheet Prices and Business Continue Uncertain

The aggregate of small, prompt orders enables Pittsburgh and Mahoning Valley sheet mills to operate at 75 to 80 per cent. Automotive business changes little in volume, but is more spotty. Competition for galvanized business is keenest, a condition reflected in prices. Blue annealed demand at Chicago is in contrast with the meager inflow of galvanized and black sheet orders. Sheet prices at some Eastern points are so uncertain that some users are deferring purchasing. Tin plate mills still operate better than 90 per cent.

Important makers of both hot and cold rolled strip in the Pittsburgh district have taken more business in May than in April, reflecting in part the distribution of Ford parts orders. Some attractive automotive business also has developed for cold bar finishers. Efforts to break the cold finished market are claimed to have failed.

Pig Iron

Pittsburgh.—Pig iron inquiries are rare and the market is inactive. The carry-over from second to third quarter for some foundries is expected to be large, as a few of them are operating at only 25 per cent. Negotiations developed the fact that $16, valley, was quoted, though some valley merchant producers would not go below $16.50.

Foundry operations in the Chicago territory and in Michigan continue spotty. Shipments from furnace stocks are keeping close to April, and it is indicated the month's deliveries will measure well with those of last month, when the 100,000-ton mark was topped. All sellers are now quoting $18, base, Chicago furnace.

At Birmingham pig iron orders are small, and not as numerous as a short time ago. Probable output for the next 30 days has been fairly well covered. The price appears steady at $16, base Birmingham.

Copper

Strength in the market is due primarily to record breaking export business. Domestic business this year has not been in as large tonnage as last year, although lately it has been better than a few months ago. The increase in export business has been greater than the decrease in domestic business compared with last year. For this reason total shipments of copper are so large as to test producers' ability to ship.

Tin

This metal was active on two or three days the past week, and held at a remarkably steady price level. There appears to be more certainty that world output will continue large than that consumption will hold to its present high rate.

Lead

After an unusually long period of unchanged prices, lead went up 10 points last Friday, to 6.20 cents, New York, and 6.05 cents to 6.10 cents, East St. Louis. For several

Zinc

Prime Western has sold only in a light tonnage during the past week, but most of this business has been for prompt or June shipment.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, $32.25; Commercial 45-55, $29.25; plumbers', $26.25; all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, $16.00 to $16.50; old iron axles, $21.50 to $22.00; steel springs, $16.50 to $17.00; No. 1 wrought iron, $11.75 to $12.25; No. 1 cast, $12.75 to $13.25; all per net tons. Prices on non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 3½ cents; cast aluminum, 13¼ cents.

INLAND Can Help Increase Your Sheet Steel Business

People are beginning to realize the value of sheet steel products.

Their beauty, strength, safety and economy have never been questioned but these facts have now been brought clearly to the attention of the public.

You can take advantage of this splendid educational work which is being done by the Sheet Steel Trade Extension Committee, Pittsburgh, Pa., and you will make no mistake by using

INLAND OPEN HEARTH SHEET STEEL

Producers of Blue Annealed, Box Annealed, Galvanized and Roofing Sheets for twenty-six years, controlling its manufacturing operations from ore to finished product, this Company can be relied upon to furnish you with material properly prepared for each special usage.

With sheet mills at Indiana Harbor, Indiana, and Milwaukee, Wisconsin, INLAND is especially in a position to render prompt and efficient service to the sheet steel buyers of the Middle West.

Life Insurance for Sheet Steel

Insure longer life for the sheet steel you purchase! Demand protection against corrosion and rust.

Specify

Inland Copper Alloy Steel

Sheets to this specification last three to five times longer.

They are durable!

Contributing Member
SHEET STEEL
TRADE EXTENSION COMMITTEE

INLAND STEEL COMPANY

38 South Dearborn Street
CHICAGO

Branch Offices and Representatives

St. Louis Milwaukee St. Paul Kansas City New Orleans
El Paso Salt Lake City

Sheets · Rivets · Bars · Plates · Shapes · Rails · Track Accessories

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

METALS

PIG IRON

Chicago Fdy., No. 2	$18.00
Southern Fdy. No. 2	22 01
Lake Superior Charcoal	27 04
Malleable	18.00

FIRST QUALITY BRIGHT TIN PLATES

1C	20x28 112 sheets	$25 10
IX	20x28	29 60
1XX	20x28 56 sheets	16 20
1XXX	20x28	17 55
1XXXX	20x28	18 96

TERNE PLATES

		Per Box
IC	20x28, 40-lb. 112 sheets	$25 00
IX	20x28, 40-lb. 112 sheets	27 75
IC	20x28, 25-lb. 112 sheets	21 15
IX	20x28, 25-lb. 112 sheets	23 80
IC	20x28, 20-lb. 112 sheets	19 55
IV	20x28, 20-lb. 112 sheets	22 05
IC	20x28, 15-lb. 112 sheets	18 05

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including ¼ in.—100 lbs. $4 55

COKE PLATES

Cokes, 80 lbs., base, 20x28	$13 60
Cokes, 90 lbs., base, 20x28	13 80
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC 20x28	14 80
Cokes, 135 lbs., base, IX 20x28	16 40
Cokes, 155 lbs., base, 56 sheets	9 20
Cokes, 175 lbs., base, 56 sheets	10 05
Cokes, 195 lbs., base, 56 sheets	10 90

BLUE ANNEALED SHEETS

Base 10 ga. per 100 lbs.	$3 50
"Armco" 10 ga. per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK

No. 18-20 per 100 lbs.	$3 75
No. 22 per 100 lbs.	3 90
No. 24 per 100 lbs.	3 95
No. 26 per 100 lbs.	4 05
No. 27 per 100 lbs.	4 10
No. 28 per 100 lbs.	4 20
No. 29 per 100 lbs.	4 35
No. 30 per 100 lbs.	4 45

"ARMCO" GALVANIZED

"Armco" 24 ... per 100 lbs. $6 15

GALVANIZED

No. 16 per 100 lbs.	$4 30
No. 18 per 100 lbs.	4 45
No. 20 per 100 lbs.	4 60
No. 22 per 100 lbs.	4 65
No. 24 per 100 lbs.	4 80
No. 26 per 100 lbs.	5 05
No. 27 per 100 lbs.	5 15
No. 28 per 100 lbs.	5 30
No. 30 per 100 lbs.	5 70

BAR SOLDER

Warranted

50-50 ..... per 100 lbs. $32 25

Commercial

45-55 per 100 lbs.	29 25
Plumbers ... per 100 lbs.	26 25

ZINC

In Slabs ..... $ 8 50

SHEET ZINC

Cash Lots (600 lbs.)	$12 00
Sheet Lots	13 00

BRASS

Sheets, Chicago base	18¼c
Mill base	18½c
Tubing, brazed base	27¼c
Wire, base	18¾c
Rods, base	16¼c

COPPER

Sheets, Chicago base	24½c
Mill base	22½c
Tubing, seamless base	26¼c
Wire, No. 9, B & S Ga.	19¾c
Wire, No. 10, B & S ga.	19½c
Wire, No. 1 1.B & S Ga.	20¼c
Wire, No. 3, B & S Ga. and heavier	19c

LEAD

American Pig	$7 20
Bar	8 20

TIN

Pig Tin ... per 100 lbs.	$58 00
Bar Tin ... per 100 lbs.	59 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	6¼c per lb.
Mill board 2/32 to ⅛	6c per lb.
Corrugated Paper (250 sq. ft. to roll)	$6 00 per roll

BRUSHES

Furnace Pipe Cleaning

Bristle, with handle, each $0 75

Flue Cleaning

Steel only, each 1 25

BURRS

Copper Burrs only 40-2½%

CEMENT, FURNACE

American Seal, .5-lb. cans, net	$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora ... per 100 lbs.	7 50

CHIMNEY TOPS

Adams' Revolving

	Wt. Doz.	Price Doz.
4 in.	21 lbs.	$11 00
6 in.	24 lbs.	11 50
7 in.	30 lbs.	13 50
8 in.	33 lbs.	15 00
9 in.	51 lbs.	16 50
10 in.	56 lbs.	18 00
12 in.	66 lbs.	22 00
14 in.	110 lbs.	36 00

CLINKER TONGS

Each	$0 75
Per doz.	8 40

CLIPS

Damper

No-Rivet Steel, with tail pieces, per gross	$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	2 40

COPPERS—Soldering

Pointed Roofing

3 lb. and heavier ... per lb.	40c
2½ lb. ... per lb.	45c
2 lb. ... per lb.	48c
1½ lb. ... per lb.	55c
1 lb. ... per lb.	60c

CORNICE BRAKES

Chicago Steel Bending

Nos. 1 to 6B ..... Net

CUT-OFFS

Gal., plain, round or cor. rd.

26 gauge	30%
28 gauge	35%

DAMPERS

"Yankee" Hot Air

7 inch, each 20c, doz.	$1 60
8 inch, each 25c, doz.	2 20
9 inch, each 30c, doz.	2 60
10 inch, each 32c, doz.	3 30

Smoke Pipe

7 inch, doz.	$1 60
8 inch, doz.	2 20
9 inch, doz.	3 00
10 inch, doz.	3 75
12 inch, doz.	4 50

ADAMS No. 1 CHECK

Check and Collar Complete

8 inch, each	2 00
9 inch, each	2 25

End Check Only

8 inch, each	1 60
9 inch, each	1 85

Collar Only

8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00

10% Disc. on Adams No. 1 and No. 2 Check

Diamond Smoke Pipe

7 inch, doz.	$ 2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

Adams' Sheet Metal

7 inch, doz.	$ 1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated 75 & 5%

Zinc, "Barnes" 60%

ELBOWS

Conductor Pipe

Galv. plain or corrugated, round flat Crimp.

28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. & Terne Steel

Plain Rd. and Rd. Corr.:

28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.

Not nested	70 & 5%
Nested Solid	70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

Portico

1", 1¼", 1½" 45%

Copper

16 oz., all designs 50%

Zinc—

All styles 60%

ELBOWS—Stove Pipe

1-piece Corrugated. Uniform Blue "Milcor" No. 28 Gauge.	Doz.
5-inch	$1 05
6-inch	1 20
7-inch	1 75

Special Corrugated

6-inch	$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge. Uniform Blue.	
5-inch	$1 65
6-inch	1 75
7-inch	2 10

WOOD FACES—50% off list.

FENCE

726-6-12½% (100 rods) $28 68

1948-6-14½% (100 rods) 42 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS

Geo. W. Diener Mfg. Co.	Ea.
No. 02 Gasoline Torch, 1 qt.	$ 5 13
No. 0250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	3 60
No. 110 Automatic Gas Soldering Furnace	10 50

Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis 30%

(Extra Disct. for large quantities.)

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	$2 00
Tubs (Galv. after made).	
No. 1	5 75
No. 2	6 50

GLASS

Single Strength, A, 52-in. brackets	80-5%
Single Strength, B, 34 to 40-in. brackets	80-5%
Single Strength, A, all other brackets	80-5%
Double Strength, A, all sizes	80%

HANGERS

Conductor Pipe

Milcor Perfection Wire	25%
Milcor Triplex Wire	10%

Eaves Trough

Milcor Steel (galv. after forming) List	plus 12½%
Milcor Selflock E. T. Wire, List	plus 50%

HOOKS

Conductor

"Direct Drive" Wrought Iron for wood or brick .. 15%

HUMIDIFIER

"Front-Rank," Automatic

In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover

Coppered ... per gro.	$6 00
Alaska ... per gro.	4 75

MALLETS

Tinners

Hickory ... per doz. $2 25

MITRES

Galvanized steel mitres.

28 Ga.	70
26 Ga.	60-20

NAILS

Cut Steel	$4 25
Cut Iron	4 25

Wire

Common	$3 10
Cement Coated	3 10

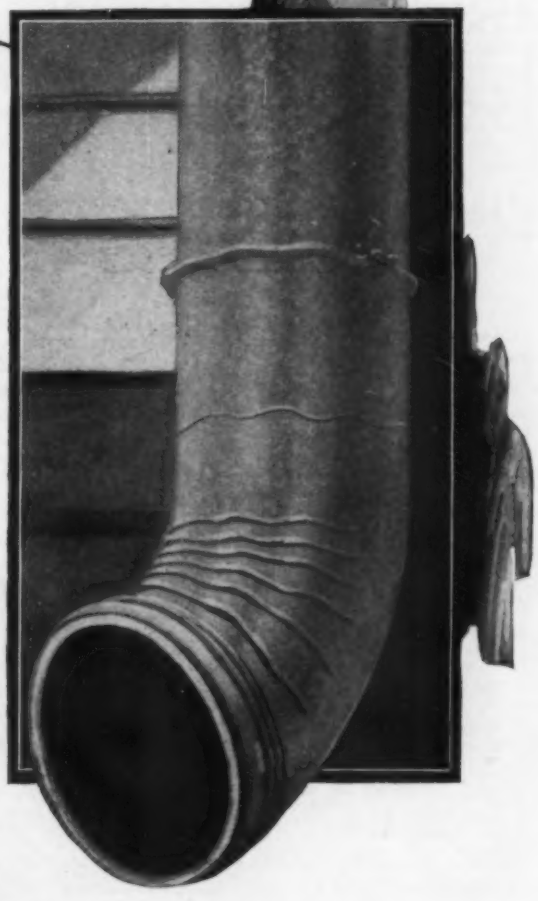
(Continued on Page 32)

Wheeling
CORRUGATING COMPANY

Doubly Durable
Because
Doubly Protected

1 The base metal is the highly rust-resistant Copper Alloy, known everywhere as Ohio Metal.

2 The conductor is completely formed and finally *hand-dipped in pure molten zinc.*



A SAMPLE of Wheeling Hand-Dipped Conductor will enable you to judge why the trade, generally, accepts it as the most satisfactory and the most economical conductor made.

Note that the metal base is completely imbedded in a thick, impenetrable protective coating of pure zinc. Note also that the seams, edges and surfaces are thoroughly and uniformly covered—the result of *hand-dipping after forming.*

Exposed to the air, the zinc first protects itself by a natural surface oxidization. This ceases abruptly after closing the pores of the zinc and a lasting barrier to the elements is the result.

Made of Ohio Metal, hand-dipped in pure molten zinc, this conductor is stronger, more rigid and doubly durable. Let us send you a sample for close-up inspection.

Wheeling

HAND DIPPED CONDUCTOR

Wheeling Corrugating Company, Wheeling, W. Va.

NEW YORK PHILADELPHIA CHICAGO KANSAS CITY
ST. LOUIS RICHMOND CHATTANOOGA MINNEAPOLIS

Say you saw it in AMERICAN ARTISAN—Thank you!

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NETTING, POULTRY

Galvanized before weaving 40%
Galvanized after weaving.50-10%

PASTE

Asbestos Dry Paste:

200-lb. Barrel $16 00
100-lb. barrel 8 75
25-lb. pail 3 50
10-lb. bag 1 10
5-lb. bag 60
2½-lb. cartons 35

POKERS, FURNACE

Each $0 75

POKERS, STOVE

Nickel Plated, coil handles, per doz. 1 10
W'r't Steel, str't or bent, per doz. $0 75

PIPE

Conductor

Cor. Rd., Plain Rd., or Sq.

Galvanized

Crated and nested (all gauges) 75-2½%
Crated and not nested (all gauges) 70-15%

Furnace Pipe

Double Wall Pipe and Fittings 50%
Single Wall Pipe, Round Galvanized Pipe 50%
Galvanized and Tin Fittings 50%

Lead

Per 100 lbs. $12 50

Stove Pipe

"Milcor" "Titelock" Uniform Blue Stove

28 gauge, 6 inch U. C. nested 10 50
28 gauge, 6 inch U. C. nested 11 00
28 gauge, 7 inch U. C. nested 12 00
30 gauge, 6 inch U. C. nested 9 00
30 gauge, 6 inch U. C. nested 10 00
30 gauge, 7 inch U. C. nested 12 00

T-Joint Made up

6-inch, 28 ga....per doz. $ 4 00

All Zinc

No. 11, all styles....40%

PULLEYS

Furnace Tackle....per doz. $0 25
....per gro. $ 50
Furnace Screw (enameled) ....per doz. 75

PUTTY

Commercial Putty, 100-lb. Kits $3 50

QUADRANTS

Malleable Iron Damper....10%

REDUCERS—Oval Stove Pipe

Per Doz.

7—6, 28-gauge, 1 doz. in carton $2 00

REGISTERS AND BORDERS

Baseboard, Floor and Wall.

Cast Iron 20%
Steel and Semi-Steel....40%
Baseboard, 1 piece....40-20%
Baseboard, 2 piece....40%
Wall 40%
Adjustable Ceiling Ventilators 40%

Register Faces—Cast and Steel

Japanned, Bronzed and Plated, 4x6 to 14x14....40%
Large Register Faces—Cast, 14x14 to 38x42....60%
Large Register Faces—Steel, 14x14 to 38x42....65%

Ventilating Register

Per gross 9 00
Small, per pair 30
Large, per pair 50

RIDGE ROLL

Galv., Plain Ridge Roll, b'did 75-10-5%
Galv., Plain Ridge Roll crated 75-10%
Globe Finials for Ridge Roll..50%

SCREWS

Sheet Metal

7, ½x⅛, per gross....$0 52
No. 10, ⅝x3/16, per gross 68
No. 14, ⅞x¼, per gross.. 82

SHEARS, TINNERS' & MACHINISTS'

Viking $32 00

Lennox Throatless

No. 12 ....35%
Shear blades 10%
(f. o. b. Marshalltown, Iowa)

SHIELDS, REGISTER

No. 1 "Gem" floor....$12 00 doz.
No. 2 "Gem" wall.... 6 00 doz.

SHOES

Galv. 28 Gauge, Plain or corrugated round flat crimp...60%
26 gauge round flat crimp....45%
24 gauge round flat crimp....15%

SNIPS, TINNERS

Clover Leaf ....40 & 10%
National ....40 & 10%
Star 50%
Milcor ....Net

SQUARES

Steel and Iron ....Net
(Add for bluing $3 per doz. net)
Mitre ....Net
Try ....Net
Try and Bevel....Net
Try and Mitre....Net
Fox's ....per doz. $6 00
Winterbottom's 10%

STOPPERS, FLUE

Common ....per doz. $1 10
Gem, No. 1....per doz. 1 10
Gem, flat, No. 2....per doz. 1 00

VENTILATORS

Standard ....30 to 40%

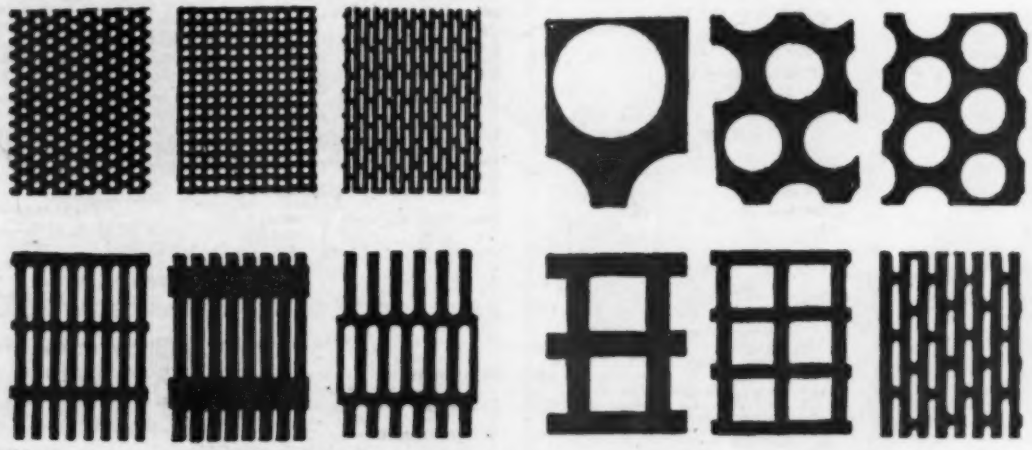
WIRE

Plain annealed wire, No. 8 per 100 lbs. $3 05
Galvanized barb wire, per 100 lbs. 3 90
Wire Cloth—black painted, 12-mesh, per 100 sq. ft.... 1 85
Cattle Wire—galvanized catch weight spool, per 100 lbs.. 3 30
Galvanized Hog Wire, 80 rod spool, per spool 3 15
Galvanized Plain Wire, No. 9, per 100 lbs. 3 85
Stove Pipe, per stone.... 1 10

WRINGERS

No. 700, Guarantee ...each $5 10
No. 770, Bicycle ....each 4 70
No. 670, Domestic ....each 4 35
No. 110, Brighton ....each 3 70
No. 750, Guarantee ...each 5 10
No. 740, Bicycle ....each 4 70
No. 22, Pioneer. ....each 3 40
No. 2, Superb ....each 3 85

PERFORATED METALS



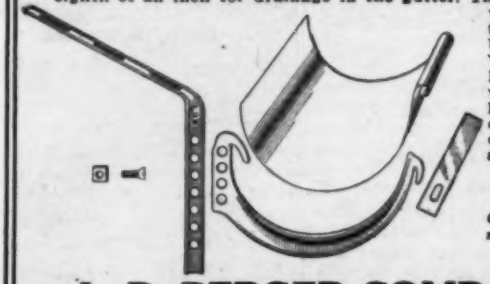
All Sizes and Shapes of Holes in all Kinds and Thicknesses of Metal.
Punched Metal Grilles, Register Faces, Ventilators, etc.
Guard Material for Machines and Belts. We supply a complete line of Accessories
Screens for Grain, Minerals or anything to be screened.
Perforated Tin and Brass always in stock

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE STREET, CHICAGO, ILLINOIS, U. S. A.
New York Office: 114 Liberty Street

ROOF GUTTER SUPPORTS

This illustration shows, unassembled, one of the many styles of eaves trough hangers made by us which may be adjusted every eighth of an inch for drainage in the gutter. These hangers are widely used throughout the United States. Write for catalog No. 2; which also illustrates and describes conductor hooks and fasteners.



Free Samples Gladly Furnished.

L. D. BERGER COMPANY
57 N. 2nd St., Philadelphia, Pa.

THIS MEANS SERVICE

B.B. LINE OF SHEET METAL SUPPLIES

CARRIED IN STOCK BY YOUR NEAREST JOBBER INSURING PROMPT SHIPMENT OF QUALITY MATERIAL.

EVERY ITEM OF THE B. B. LINE IN A CLASS BY ITSELF. LOOK FOR THE B. B.

B. B. Conductor Hooks and Gutter Hangers, "SHUR-LOCK" Conductor Pipe, "E-Z Fit" Eaves Trough, "Quaker City" Mitres, Ends, Caps and Outlets. Other items in our No. 10 Catalog.

BERGER BROS. CO.
229 TO 237 ARCH ST. PHILADELPHIA

CHICAGO STEEL SLITTING SHEAR

LIGHT—POWERFUL DURABLE

Capacity 10 gauge sheets
Any Length or Width
Flat Bars 3/16x2"
Weight 22 pounds

Price $12.50 Net
F. O. B. Chicago

Made of pressed steel and equipped with hold-down. Blades of highest grade crucible steel. Most indispensable high grade shears made. Equal to other shears selling at over twice the price. *ORDER YOURS TODAY.*

DREIS & KRUMP MFG. CO., 7404 Loomis St., Chicago

The W. J. BURTON CO.

Detroit, Michigan

Forty-Four Years Serving the Sheet Metal Contractor

with

SHEET METAL PRODUCTS FOR BUILDINGS

BUYERS' DIRECTORY

Asbestos—Liquid.
B. & F. Mfg. Co., Des Moines, Ia.

Acetylene (Gas) Dissolved.
Prest-O-Lite Co., Inc., New York, N. Y.

Air Filters.
Sturtevant Co., B. F., Boston, Mass.

Bale Ties.
American Steel & Wire Co., Chicago, Ill.

Bolts—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Brakes—Bending.
Dreis & Krump Mfg. Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Brakes—Cornice.
Dreis & Krump Mfg. Co., Chicago, Ill.

Brass and Copper.
American Brass Co., Waterbury, Conn.
Copper & Brass Research Association, New York
Merchant & Evans Co., Philadelphia, Pa.

Burners—Gas.
Wender-Worker Gas Appliance Co., Cincinnati, Ohio

Code Calculator.
Standard Code Computing Rule Co., Baltimore, Maryland

Cans—Garbage.
Osborn Co., The J. M. & L. A., Cleveland, Ohio

Castings—Malleable.
Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal.
Burton Co., The W. J., Detroit, Mich.
Friedley-Voshardt Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Wheeling Corrugating Co., Wheeling, W. Va.

Chaplets.
Fanner Mfg. Co., Cleveland, Ohio

Chimney Tops.
Standard Ventilator Co., Lewisburg, Pa.

Check Drafts.
Teela Sheet Metal Co., Oshkosh, Wis.

Clinker Tongs.
L. J. Mueller Furnace Co., Milwaukee, Wis.
Stover Mfg. & Engine Co., Freeport, Ill.

Copper.
American Brass Co., Waterbury, Conn.
Copper & Brass Research Association, New York

Cornices.
Friedley-Voshardt Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go. La Crosse, Kan. City

Cutting Blowpipes
Oxweld Acetylene Co., New York, N. Y.

Cut-offs—Rain Water
Milwaukee Corrugating Co., Mil., Ch'go. La Crosse, Kan. City

Dampers—Quadrants—Accessories.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
L. J. Mueller Furnace Co., Milwaukee, Wis.
Parker-Kalon Corp., New York, N. Y.
Stover Mfg. & Engine Co., Freeport, Ill.

Dies—Punch & Press.
La Salle Machine Works, Chicago, Ill.

Diffuser—Air Duct.
Aeolus-Dickinson Co., Chicago, Ill.
L. J. Mueller Furnace Co., Milwaukee, Wis.

Doors—Metal.
Lupton's Sons Co., David, Philadelphia, Pa.

Drive Screws—Hardened Metallic
Parker-Kalon Corp., 364 West 13th St., New York

Eaves Trough.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Berger Co., L. D., Philadelphia, Pa.
Burton Co., The W. J., Detroit, Mich.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
New Jersey Zinc Sales Co., The New York, N. Y.
Wheeling Corrugating Co., Wheeling, W. Va.

Elbows and Shoes—Conductor.
Barnes Metal Products Co., Chicago, Ill.
Dieckmann Co., Ferdinand, Cincinnati, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Wood Faces—Cold Air.
Auer Register Co., Cleveland, Ohio
American Wood Register Co., Plymouth, Ind.
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United States Register Co., Battle Creek, Mich.

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American Steel & Wire Co., Chicago, Ill.

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Flanges.
Chicago Metal Mfg. Co., Chicago, Ill.

Fittings—Steel Pipe.
Chicago Metal Mfg. Co., Chicago, Ill.

Flue Thimbles.
Milwaukee Corrugating Co., Mil., Ch'go. La Crosse, Kan. City

Furnace Cement—Asbestos.
Buckeye Products Co., The, Cincinnati, Ohio
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Furnace Cement—Liquid.
Technical Products Co., Pittsburgh, Pa.

Furnace Cleaners—Suction.
Brillion Furnace Co., Brillion, Wis.
Sturtevant Co., B. F., Boston, Mass.
Williamson Heater Co., Cincinnati, Ohio

Furnace Fans.
A. H. Robinson Co., Massillon, Ohio
Warm Air Furnace Fan Co., The Cleveland, Ohio
Williamson Heater Co., Cincinnati, Ohio

Furnace Rings.
Forest City-Walworth Run Foundries Co., Cleveland, O.
Milwaukee Corrugating Co., Milwaukee, Wis.

Furnaces—Gas.
Calkins & Pearce, Columbus, O.
Mueller Furnace Co., L. J., Milwaukee, Wis.

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Waterloo Register Co., Waterloo, Iowa

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Meyer Furnace Co., The, Peoria, Ill.
Moncrief Furnace Co., Atlanta, Ga.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Mueller Furnace Co., L. J., Milwaukee, Wis.
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Standard Furnace & Supply Co., Omaha, Neb.
Success Heater Mfg. Co., Des Moines, Iowa
Thatcher Co., Chicago, Ill.
XXth Century Heating & Ventilating Co., Akron, Ohio
Utica Division of Richardson & Boynton Co., Utica, N. Y.
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.
Williamson Heater Co., Cincinnati, Ohio
Wise Furnace Co., Akron, Ohio

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Thomas & Armstrong Co., The London, Ohio

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Prest-O-Lite Co., Inc., New York, N. Y.

Gas (Nitrogen).
Linde Air Products Co., New York, N. Y.

Gas (Oxygen).
Linde Air Products Co., New York, N. Y.

Glass—Wire.
Lupton's Sons Co., David, Philadelphia, Pa.

Grilles.
Auer Register Co., Cleveland, Ohio
Harrington & King Perforating Co., Chicago, Ill.
Hart & Cooley Co., New Britain, Conn.
Independent Reg. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., Chicago, Ill.
United States Register Co., Battle Creek, Mich.

Grilles—Store Front.
Tuttle & Bailey Mfg. Co., Chicago, Ill.

Guards—Machine and Belt.
Harrington & King Perforating Co., Chicago, Ill.

Handles—Boiler.
Berger Bros. Co., Philadelphia, Pa.

Handles—Soldering Iron.
Hyro Mfg. Co., New York, N. Y.

Hangers—Eaves Trough.
Berger Co., L. D., Philadelphia, Pa.
Horan Stay Hanger Co., Louisville, Ky.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Heaters—Cabinet.
Fox Furnace Co., Elyria, Ohio
Mueller Furnace Co., L. J., Milwaukee, Wis.
Waterman-Waterbury Co., Minneapolis, Minn.

Heaters—Gas.

Heaters—School Room.
Floral City Heater Co., Monroe, Mich.
Meyer Furnace Co., The, Peoria, Ill.
L. J. Mueller Furnace Co., Milwaukee, Wis.
Standard Furnace & Supply Co., Omaha, Neb.
Waterman-Waterbury Co., Minneapolis, Minn.

Hooks—Conductor.
Berger Co., L. D., Philadelphia, Pa.

Hotels.
Fort Shelby Hotel, Detroit, Mich.

Humidifiers.
Automatic Humidifier Co., Cedar Falls, Iowa
L. J. Mueller Furnace Co., Milwaukee, Wis.

Lath—Expanding Metal.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Machines—Crimping.
Bertsch & Co., Cambridge City, Ind.

Machinery—Culvert.
Bertsch & Co., Cambridge City, Ind

Machines—Tinsmith's.
Bertsch & Co., Cambridge City, Ind
Burton Co., The W. J., Detroit, Mich.
Dreis & Krump Mfg. Co., Chicago, Ill.
La Salle Machine Works, Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Iowa
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Tinners' Machinery Co., Chicago, Ill.
Whitney Mfg. Co., W. A., Rockford, Ill.
Whitney Metal Tool Co., Rockford, Ill

Mandrels.
Hyro Mfg. Co., New York, N. Y.

Metals—Perforated.
Harrington & King Perforating Co., Chicago, Ill.

Miters.
Friedley-Voshardt Co., Chicago, Ill
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Miters—Eaves Trough.
Barnes Metal Products Co., Chicago, Ill.
Braden Mfg. Co., Terre Haute, Ind.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Nails—Hardened Masonry.
Parker-Kalon Corp., New York, N. Y.

Nails—Wire.
American Steel & Wire Co., Chicago, Ill.

Nitrogen (Gas).
Linde Air Products Co., New York, N. Y.

Ornaments—Sheet Metal.
Friedley-Voshardt Co., Chicago, Ill.
Gerock Bros. Mfg. Co., St. Louis, Mo
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Oxygen (Gas).
Linde Air Products Co., New York, N. Y.

Paint.
Conners Paint Mfg. Co., Wm., Troy, N. Y.

Patterns—Furnace and Stove.
Cleveland Castings Pattern Co., Cleveland, Ohio
Quincy Pattern Co., Quincy, Ill.
Vedder Pattern Works, Troy, N. Y.

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Green Fdy. & Furnace Co., Des Moines, Iowa
Henry Furnace & Fdy. Co., Cleveland, Ohio
Lamneck Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
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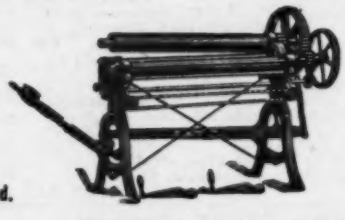

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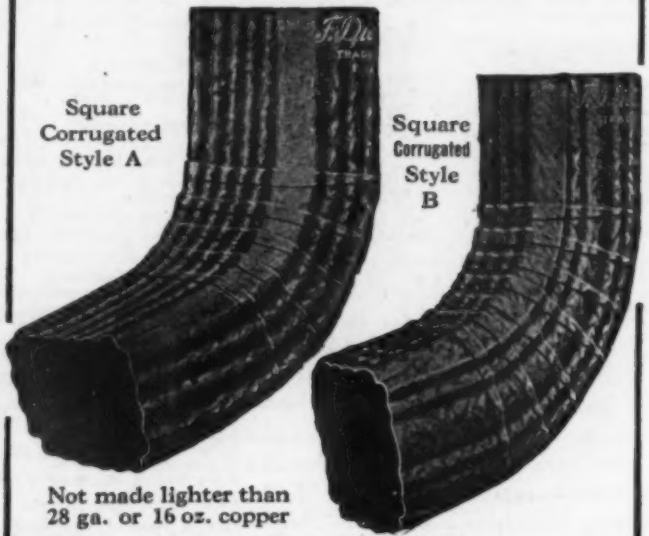

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American Steel & Wire Co., Chicago, Ill.

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La Salle Machine Works, Chicago, Ill.

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Bertsch & Co., Cambridge City, Ind.
La Salle Machine Works, Chicago, Ill.
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Tinners' Machinery Co., Chicago, Ill.
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Whitney Metal Tool Co., Rockford, Ill.

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Whitney Metal Tool Co., Rockford, Ill.
Whitney Mfg. Co., W. A., Rockford, Ill.

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Hyro Mfg. Co., New York, N. Y.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Whitney Metal Tool Co., Rockford, Ill.
Whitney Mfg. Co., W. A., Rockford, Ill.

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Connors Paint Mfg. Co., Wm., Troy, N. Y.
Pecora Paint Co., Philadelphia, Pa.

Radiator Cabinets.
The Hart & Cooley Mfg. Co., New Britain, Conn.
Tuttle & Bailey Mfg. Co., Chicago, Ill.

Radiators—Shields.
Beh & Co., Inc., New York, N. Y.
Armstrong Furnace Co., London, Ohio

Ranges—Combination Gas & Coal.
Quick Meal Stove Co., St. Louis, Mo.
Thatcher Co., Newark, N. J.

Ranges—Gas.
Quick Meal Stove Co., St. Louis, Mo.

Register Shields.
Beh & Co., Inc., New York, N. Y.

Registers—Warm Air.
Auer Register Co., Cleveland, Ohio
Forest City-Walworth Run Foundries Co., Cleveland, O.
Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Lamneck & Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Mueller Furnace Co., L. J., Milwaukee, Wis.
Stearns Register Co., Detroit, Mich.
Standard Furnace & Supply Co., Omaha, Neb.
Tuttle & Bailey Mfg. Co., Chicago, Ill.
United States Register Co., Battle Creek, Mich.
Waterloo Register Co., Waterloo, Iowa

Registers—Wood.
American Wood Register Co., Plymouth, Ind.
Auer Register Co., Cleveland, Ohio
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
L. J. Mueller Furnace Co., Milwaukee, Wis.
United States Register Co., Battle Creek, Mich.

Repairs—Stove and Furnace.
Hessler Co., H. E., Syracuse, N. Y.

Ridging.
Armco Distributors Ass'n of America, Middletown, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Rivets—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Rods—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio

Rolls—Forming.
Bertsch & Co., Cambridge City, Ind.

Roofing Cement.
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Pecora Paint Co., Philadelphia, Pa.

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Hessler Co., H. E., Syracuse, N. Y.
Milwaukee Corrugating Co., Milwaukee, Wis.

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Armco Distributors Ass'n of America, Middletown, Ohio
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Friedley-Voshardt Co., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Merchant & Evans Co., Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Wheeling Corrugating Co., Wheeling, W. Va.

Roofing—Tin.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Taylor Co., N. & G., Philadelphia, Pa.
Wheeling Corrugating Co., Wheeling, W. Va.

Roofing Tools.
Wm. Eiermann, Brooklyn, N. Y.

Roofing—Zinc.
New Jersey Zinc Sales Co., The, New York, N. Y.

Rubbish Burners.
Hart & Cooley Co., New Britain, Conn.

Schools—Sheet Metal Pattern Drafting.
St. Louis Technical Institute, St. Louis, Mo.

Schools—Warm Air Heating.
St. Louis Technical Institute, St. Louis, Mo.

Screws—Hardened Metallic Drive.
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Parker-Kalon Corp., 254 West 13th St., New York

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Parker-Kalon Corp., 200 Varick St., New York

Screens—Perforated Metal.
Harrington & King Perforating Co., Chicago, Ill.

Shears—Hand and Power.
Marshalltown Mfg. Co., Marshalltown, Iowa
Peck, Stow & Wilcox Co., Southington, Conn.
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Tinners' Machinery Co., Chicago, Ill.
Unishear Co., Inc., New York, N. Y.
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Armco Distributors Ass'n of America, Middletown, Ohio
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Inland Steel Co., Chicago, Ill.
Merchant & Evans Co., Philadelphia, Pa.
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Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Taylor Co., N. & G., Philadelphia, Pa.
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Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Sheets—Tin.
Merchant & Evans Co., Philadelphia, Pa.
Taylor Co., N. & G., Philadelphia, Pa.

Sheets—Zinc.
New Jersey Zinc Sales Co., The, New York, N. Y.

Shingles and Tiles—Metal.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Wheeling Corrugating Co., Wheeling, W. Va.

Shingles—Zinc.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Sifters—Ash.
Diener Mfg. Co., G. W., Chicago, Ill.

Sky Lights.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Snips.
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Solder.
Chicago Solder Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Quick Meal Stove Co., St. Louis, Mo.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Specialties—Hardware.
Diener Mfg. Co., G. W., Chicago, Ill.
Hessler Co., H. E., Syracuse, N. Y.

Stars—Hard Iron Cleaning.
Fanner Mfg. Co., Cleveland, Ohio

Statuary.
Friedley-Voshardt Co., Chicago, Ill.
Gerock Bros. Mfg. Co., St. Louis, Mo.

Steel Pipe—Welded.
Chicago Metal Mfg. Co., Chicago, Ill.

Stove Pipe Reducers.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Stoves—Camp.
Quick Meal Stove Co., St. Louis, Mo.

Stoves—Gasoline and Oil.
Quick Meal Stove Co., St. Louis, Mo.

Stoves and Ranges.
Detroit-Michigan Stove Co., Detroit, Mich.
Quick Meal Stove Co., St. Louis, Mo.
Thatcher Co., Newark, N. J.

Tacks, Staples, Spikes.
American Steel & Wire Co., Chicago, Ill.

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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Taylor Co., N. & G., Philadelphia, Pa.

Tools—Roofers.
Wm. Eiermann, Brooklyn, N. Y.

Tools—Tinsmith's.
Bertsch & Co., Cambridge City, Ind.
Burton Co., The W. J., Detroit, Mich.
Dries & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Marshalltown Mfg. Co., Marshalltown, Iowa
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Tinners' Machinery Co., Chicago, Ill.
Viking Shear Co., Erie, Pa.
Whitney Mfg. Co., W. A., Rockford, Ill.
Whitney Metal Tool Co., Rockford, Ill.

Torches.
Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Quick Meal Stove Co., St. Louis, Mo.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Trade Extension.
Copper & Brass Research Association, New York, N. Y.
Sheet Steel Trade Extension Committee, Pittsburgh, Pa.

Trimmings—Stove.
Fanner Mfg. Co., Cleveland, Ohio

Ventilators.
Aeolus Dickinson Co., Chicago, Ill.
Akrat Ventilators, Inc., Chicago, Ill.
Arex Company, Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Friedley-Voshardt Co., Chicago, Ill.
Kernchen Co., Chicago, Ill.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Standard Ventilator Co., Lewisburg, Pa.

Ventilators—Ceiling.
Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., New York

Windows—Steel.
Lupton's Sons Co., David, Philadelphia, Pa.

Wire—Electrical.
American Steel & Wire Co., Chicago, Ill.

Wire Hoops.
American Steel & Wire Co., Chicago, Ill.

Wire Rope.
American Steel & Wire Co., Chicago, Ill.

Zinc.
Merchant & Evans Co., Philadelphia, Pa.
New Jersey Zinc Co., The, New York, N. Y.

WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired and must reach our office by Thursday of the week of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines, employment agencies and brokers.

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Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wis.

For Sale—Good all around sheet metal shop in town of 4,000 for repairing and manufacturing sheet metal articles. Shop carries 8-foot cornice brake and other machinery, as well as a truck and good stock. Must sell on account of health. This shop is establishing a good business. A good buy at a price that is right. Address Ralph Johnson, Jefferson, Iowa. E-474

For Sale—Tinshop in one of the best towns in the state. Owner wants to sell on account of old age. This is an old established business. Will invoice between $1,000 and $1,500. Located in fireproof building with cheap rent. Will sell material and rent the tools or sell entire business. Good opportunity for someone. Address Strum Tin Shop, Macomb, Ill. S-473

For Sale—Tin and sheet metal shop fully equipped. Will sell for $500.00 down and balance of $25.00 per month. Stock and tools will invoice about $2,500.00; will take $2,000.00. Reasonable rent and plenty of work. Town of 1,400. Other interests reason for selling. Write for full particulars to Y-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

For Sale—On account of death will sell hardware store located in a good residence district between Piggly Wiggly store and picture show. Rent, $30, with steam heat. Size 20x50. Invoices about $3,000. Cash. Address Womack Hardware Store, 1475 S. Pearl St., Denver, Colo. P-473

Partner wanted in sheet metal and furnace business. Good chance for young man who is able to handle outside work, as I can't get around on account of old age. Must be a good mechanic. If interested communicate with Mt. Vernon Sheet Metal Works, Mt. Vernon, Ill. D-474

Hardware Stock for Sale—Good clean stock of hardware in South Dakota. Have a good trade. Death of owner is reason for selling. Address R-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

BUSINESS CHANCES

For Sale — Interest in an established sheet metal shop, town of 60,000 inhabitants, in southern central Wisconsin. About $80,000 business per year. $10,000 will swing the deal. Address C-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

For Rent—Alley tinshop, northwest side of Chicago. Owner disabled, but would like to keep his customers and has just bought a vacuum furnace cleaner which he will rent out. Address Z-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

For Sale—Sheet metal and roofing business in the best city in Florida. One of the older firms in city. Going to Europe is reason for selling. Must have $2,000 cash. Balance to suit buyer. Address Q-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

For Sale — Tin shop for sale at 3614 Southport avenue, Chicago. B-474

SITUATION WANTED

Position Wanted—First-class combination man desires permanent position in Colorado or neighboring states. Can do anything in plumbing, hot water, steam, vapor or warm air heating or sheet metal work. 20 years' experience. Married. Can take charge of shop. Managed one shop 7 years, operated own 5 years. Employed, but can come after May 15. Changing on account of wife's health. Address O-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Salesman with 11 years' experience selling cast steel furnaces. Can estimate and lay out standard code and fan jobs. Wide acquaintance with dealers and jobbers west of the Missouri river. Will be ready to change June 15. Best of reference as to character and ability will be supplied. Address M-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Salesman having five years' experience covering Michigan, Indiana and northern Ohio selling warm air furnaces. Also have had several years' experience as sales manager. Would be glad to hear from any manufacturing company needing a salesman or sales manager. Address Y-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Situation Wanted—Salesman having more than 10 years' experience selling furnaces and stoves in Central and West Central States. Familiar with Standard Code and Fan jobs. Available June 15, 1928. Address D-475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.

Middle aged A1 tinner and sheet metal worker with exceptionally wide experience who understands plumbing wishes a job in a small southern town with a chance to take business over later. Give full particulars in first letter. Address "P. M.," 1455 Second St., Milwaukee, Wis. K-474

Situation Wanted—By good tinner, 58 years old, unable to do any high climbing. Can furnish tools, 8-foot brake included, if wanted. Eastern Minnesota or Northwestern Wisconsin preferred. State salary. Address F-475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.

Tinner and furnace installer wants position. Can also do plumbing. Twenty years of experience and sober. Prefer location within 300 miles of Milwaukee. Can come any time. Address L-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Situation wanted by tinner, plumber and furnace man. Married and want steady job. Age 29 years. Fifteen years at trade. Minnesota or Wisconsin preferred. Learned trade in Germany. Address O-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

SITUATION WANTED

In Chicago—Sheet metal estimator and salesman is looking for a new connection. Architectural and actual building experience along with education make him an ideal contact man. Address G-475, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Situation wanted by practical sheet metal worker, plumber and warm air furnace installer; also hot water heating. Address X-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

HELP WANTED

Wanted—First-class furnace setter or real salesman to invest several thousand dollars and services in our business to act as superintendent as soon as he qualifies. Such a man will earn from two to eight thousand per year, according to whether he is a salesman or furnace setter, and depending entirely upon his ability. Do not answer unless you are competent, and we do not want a drinker. Job in southern Ohio and no traveling. Address X-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Wanted—First-class tinner and windmill man. Must be able to do all kinds of outside and inside work. Steady position in South Dakota town of 5,000. Write fully, giving experience, salary and reference in first letter. Must be sober and not over 40 years of age. Address R-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Wanted—Sheet metal, furnace and general repair man, married, not over 40 years of age, for southern Wisconsin county town. Steady year around job to the man who can deliver. Have schools and churches. State wages and age in first letter. No boozer wanted. Address W-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Wanted—A man to take charge of gas range department. Must have experience in laying out gas range sheet metal patterns and to supervise the assembling. Excellent proposition for the right party. Address F-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Wanted — Two first-class all around sheet metal workers. Steady position in South. Write fully, giving experience in different branches of business. Address T-473, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Wanted — An experienced tinner and plumber. Married man preferred. Steady job the year around for the right party. Give reference and salary wanted in first letter. Address Jamison & Son, Shell Rock, Ia. P-474

Wanted — First-class tinner or sheet metal worker; also do roofing and furnace work. State age and experience. Address Jno. F. Cartwright, Bowling Green, Ky. G-474

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A Quality Product
Write for Information and Prices.
AKRAT VENTILATORS, INC.
1191 Builders Bldg. CHICAGO

HELP WANTED

Wanted—Salesman with knowledge of warm air and pipeless furnaces to cover New York and New Jersey. State terms and qualifications. Address T-474, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Wanted—Salesman to sell and solicit for oil burners and furnaces. Good opportunity. South Side Hardware & Plumbing Co., 1512 S. 12th St., Sheboygan, Wis. H-474

Wanted—Experienced furnace installer and sheet metal man. Only experienced man with good references will be considered. Address Huron Furnace Co., Huron, S. D. S-474

MISCELLANEOUS

For Sale—Double oven Van hard coal range. Range has two ovens, 18x23. Used but in A1 condition. Scarcity of hard coal in this section makes it necessary for our customers to abandon for soft coal range. Address A-475, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

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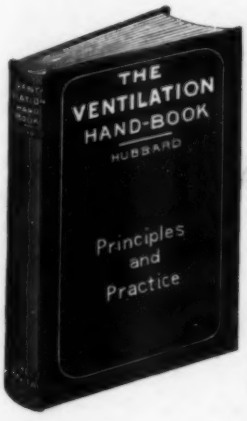

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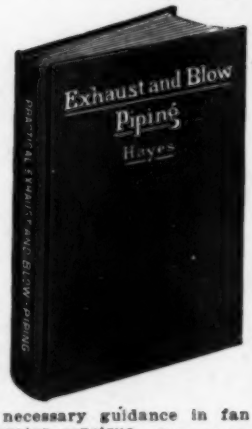

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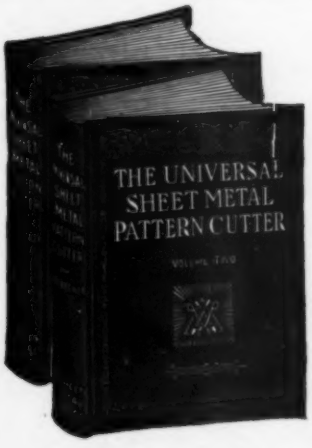

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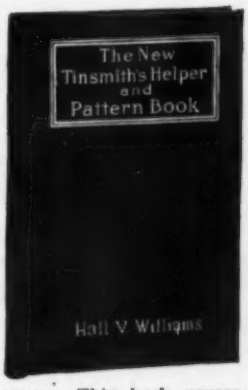

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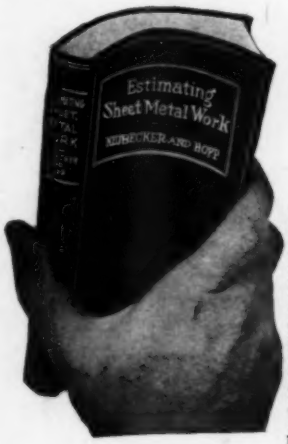

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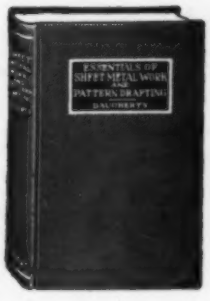

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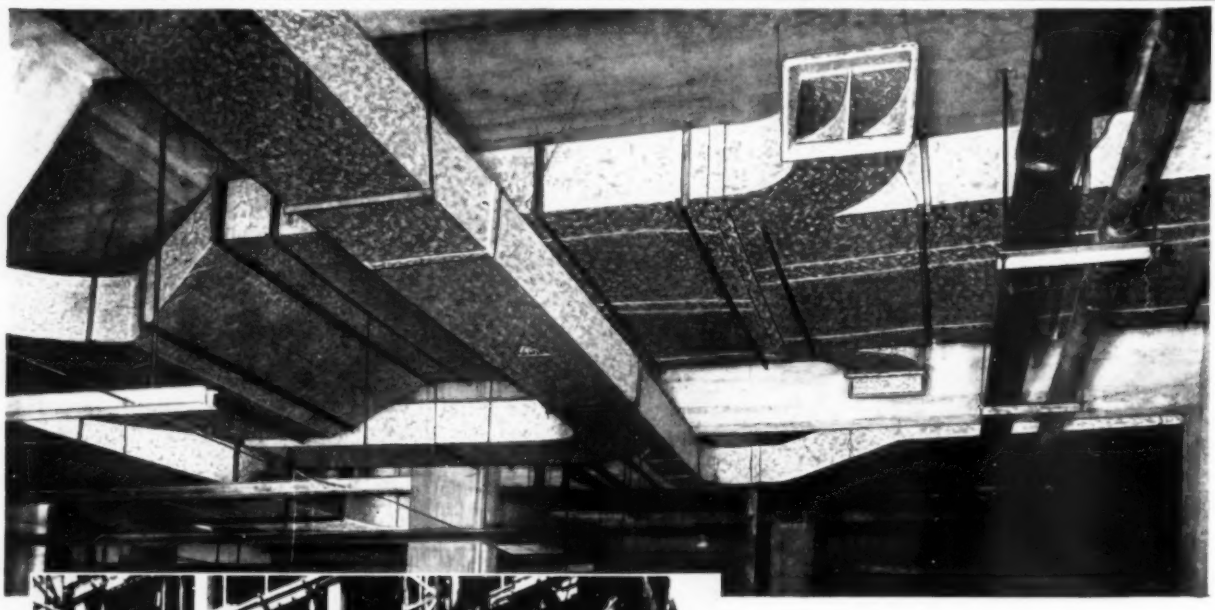

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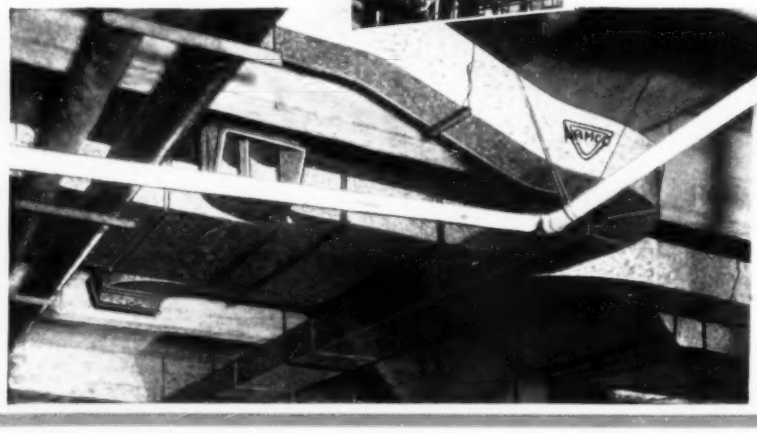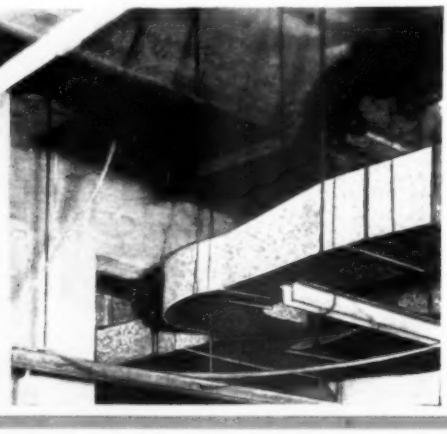
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